

ABSTRACTED Knitted Outerwear Times



the official publication of the
national knitted outerwear association
386 park avenue south, new york 16, new york
murray hill 3-7520

JUN 24 1961

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sweaters • swim suits • infantswear • knit fabric • polo shirts • gloves • headwear

Published weekly (except for a special issue in April) in New York, N. Y. Subscription price \$10 per year. Entered as Second Class Matter June 27, 1947, at the Post Office at New York, N. Y. under the Act of March 3, 1879. Copyright 1961 by the National Knitted Outerwear Association.

Vol. 30 MONDAY, JUNE 12, 1961 No. 25

U.S. To Sponsor Apparel Shows At New Trade Center In London

AMERICAN-MADE apparel, including knitwear, will be shown to British buyers in London this fall under the sponsorship of the new U.S. Trade Center in London. In a press conference at its offices here last week, the Bureau of Foreign Commerce of the Department of Commerce announced that three shows from October 2 to December 1 will cover a broad range of apparel which, according to the bureau's survey, should attract British buyers.

The shows will be: boys' and men's Western, utility and casual wear from October 2-20, women's sportswear of cotton and synthetic fabrics from October 23- November 10 and infants' and children's wear of cotton and light fabrics from November 13-December 1.

The trade center, the first government-sponsored one in U.S. history, is part of an export expansion program to help correct the imbalance in U.S. international trade.

The center will:

1. Provide facilities for the display and sale of goods at no charge to exhibitors.
2. Bring in buyers, agents, and distributors through a carefully tailored publicity program.
3. Assist exhibitors to obtain permanent sales representatives in Great Britain, if they do not wish to send their own.
4. Arrange, through field offices of the Department of Commerce, for advice and assistance to exhibitors on export sales procedures, marketing and credit information, documentation and other questions.

Government and trade personnel at the exhibit will not sell but they will be in a position to fully identify the American goods on display, to quote prices

when appropriate, and to demonstrate or explain their features to prospective foreign customers. They will also be able to suggest alternative sources of supply in the United States to refer inquiries to local representatives of American producers and to transmit immediately serious expressions of interest to U.S. firms.

Buyers will be attracted by an extensive preparational campaign reaching all levels of trade — wholesale, retail and agency — coordinated by the Commercial Attache of the U.S. Embassy in London. Through newspaper publicity, trade papers, trade associations and other media, buyers and agents will be informed of the opportunity to view the latest American lines, place orders, and obtain agencies. Special arrangements, such as bringing in British buyers on a city-by-city basis, are contemplated. In addition, a Continental Buyers' Week will be a regular feature of Trade Center promotions. U. S. commercial attaches throughout Western Europe are cooperating in publicizing Trade Center showings.

Following liberalization of British import restrictions in November 1959, wearing apparel has been the second largest gainer among American exports to the United Kingdom. In the past year, total British imports of apparel from the United States amounted to nearly \$7.2

million compared to \$1.3 million the previous year.

Only textiles made a larger gain. General opinion in British trade circles holds that the market open to American products can be substantially increased, owing to expanding British demand and receptiveness to new styles and fabrics, if American manufacturers are willing to make the required selling effort.

Must Meet Theme

To qualify for participation, the American firm must meet the established product theme. Exhibitors will assume the costs of freight, insurance and duties to the display point and contribute \$100 each to a joint promotion fund.

James E. Murrin, plans officer, Trade Centers division, estimated that an exhibit would cost a firm anywhere from \$500 to \$1,000. Air freight exceeding 100 pounds costs 50 cents a pound.

The government requires that goods for display must be manufactured in the U. S. Goods manufactured abroad under the aegis of a U. S. firm may not be exhibited.

One representative is permitted for each firm. Goods may be sold but cannot be removed till the end of the show under the participation agreement.

Interested firms should write to the Trade Centers Division, Bureau of Foreign Commerce, U.S. Department of Commerce, Washington 25, D.C., enclosing descriptive product literature. The department will send the firm a participation agreement and complete instructions for each show.

The Center will operate the year-round, promoting and furnishing
(Continued on Page 17)

Trade Drive

JDA Affair June 28 Honors Klinemans

Knitgoods and Yarns Division of Joint Defense Appeal will honor Irwin L. and Emery Klineman of Majestic Specialties, Inc. at its annual dinner June 28 at the Waldorf Astoria.

Joint Defense Appeal, the fund-raising organization for the American Jewish Committee and the Anti-Defamation League of B'nai B'rith, is seeking a national total of \$6,100,000 for human-relations programs against discriminatory practices that threaten democratic freedoms.

Phillip Leff, president of National Spinning Co., Inc., and Irving Louis, president of Irwill Knitwear Corp., co-chairmen of the Industry Division of JDA, and a committee of industry leaders are in charge of plans for the dinner.


Honorary chairmen of the division are: David Aronow, Lee Beachwear; Albert Beldoch, Beldoch - Popper, Inc.; Jerome Goldman, of Knitown Togs; Joseph Guttman, Joseph Guttman & Bros.; Moe J. Kasper, Central Knitwear Corp.; Jack Lazar, Kimberly Knitwear, Inc.; Anna R. Lazarus, Rosanna Knitted Sportswear, Inc., and Harry Silver, Lofties Knitting Mills, Inc.

Imports

'Buy American' Stickers Sent To NKOA Members

"Buy American" stickers have been sent to members of the National Knitted Outerwear Association with a suggestion that
(Continued on Page 17)

SPECIAL ISSUE: Knitwear & Swimwear Packaging Review



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Canadian mills are invited to request samples from Templon Spinning Mills (Canada) Ltd., John Webster, General Manager, Box 10, Drummondville, Quebec

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Knitted Outerwear Times

Published by National Knitted Outerwear Association, 386 Park Avenue South, New York 16, N. Y. MUrray Hill 3-7520. Subscription Price (including the Yearbook Edition)—\$10 per year in U. S. A. \$15 per year in Canada and foreign countries.

The Knitted Outerwear Times being the official publication of the National Knitted Outerwear Association, is exclusively devoted to the dissemination of information, the exchange of opinion, the stimulation of trade, and the general improvement of the knitted outerwear industry in accordance with the Association's basic objectives as expressed in the preamble of its by-laws.

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FEATURES

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Cloth Cutting

Die Cutting Of Sweater, Sleeve Strips

By CHARLES REICHMAN, Editor

DIE cutting—the technique of cutting garments on hydraulic cutters or clickers, as some people in the trade call these machines—is being adopted by many mills today as a substitute for more conventional means of shaping sweater-strips on the cutting table. Although a relatively new procedure in the knitted outerwear industry, hydraulic die cutting has been a standard method for many years in the shoe and fancy leather industries. The woven shirt trade also has used die cutting for a number of years as a means of cutting and shaping shirt collars, cuffs and pockets.

In the knitwear field integrated knitted shirt producers were among the first to use hydraulic die cutters to mass produce collars and breast pockets for knit placket shirts. Sweater knitters have been somewhat slower to accept the technique and it is only recently that a number of pace-setting mills producing men's and women's garments have awakened to the potentialities of the clicker as a production tool.

Advantages Cited

For knitters producing sweaters on a circular sweater-strip basis, die cutting has a number of advantages over the traditional ways of cutting sweater-strips. Among the more obvious ones are the following:

- Greater efficiency.
- Increased productivity.
- Cleaner, more accurate cutting.

Almost as important as these clear-cut advantages is the fact that operation of a hydraulic die cutter can be handled by semi-skilled help. It takes a year or more to develop a practiced cloth cutter. A die press operator, in contrast, can be taught to operate the machine in a matter of hours; she can become fairly proficient at the job in a few days.

In the light of the current shortage of skilled cutters, many mills see this as probably the most appealing feature of these machines. Of course, a mill contemplating the installation of a hydraulic die cutter, must weigh the cost of the machine against the cost of a set of round or straight cutting knives. A typical die cutting press costs in the neighborhood of \$2,915.

To this cost must be added the price of dies which may run as high as \$45 a piece. A complete set of dies for a large mill with a diversified line may cost upwards of \$500.

However, most sweater mills using die cutters have been able to recapture this investment in a few months, according to Fred B. Muchnick, of Montrose Supply and Equipment Co. Mr. Muchnick, whose firm sells the Sandt hydraulic die cutter, reported that one large knitting mill in the local area got its investment in a die press back in six weeks time. Although admittedly a unique case, he said that it was not unusual for a mill in two or three months to effect economies with a die cutter to the tune of the unit's gross cost, which would include the price of a set of dies.

Die cutting machines are of several types. Some of the machines on the market are copies of those used in the shoe and leather industries but adapted for the cutting of lays of sweater fabric. Others are specifically designed and engineered for cutting knitted cloth of fine gauge or bulky rib or purl construction.

A typical hydraulic die press consists of a stand which encloses the motor and hydraulic mechanism, a cutting table and a cutting arm operating on a shaft and suspended over the table. The cutting arm can be pivoted to the right or left of the cutting table to facilitate placement of the work. The machine is also fitted with twin operating buttons which when pressed, causes the cutting arm to descend in one swift motion and then automatically return to its original position. Here is how the operation proceeds:

1. The operator places a fabric lay on the cutting table or clicking board.
2. The die is positioned on top of the fabric lay.

3. The cutting arm of the machine, which had been shunted to one side, is adjusted directly over the table.

4. The operating buttons are pressed, causing the arm to drop and drive the die through the fabric.

5. The cut work is removed and a new lay of fabric is placed on the table.

Most mills assign a team of two workers to a hydraulic die cutter—one operates the machine and the other lays up the fabric in advance on clicking boards. In this way, the operator is not required to prepare each lay on the cutting table; he merely positions the die over the work, operates the machine and removes the cut work. Clicking boards are made of a stout fibrous material of uniform thickness that can be used over and over again.

Thickness of Lays

Not all die cutting machines function hydraulically; some are operated mechanically. However, the hydraulic machines are preferred because they function more smoothly, produce a cleaner cut, are noiseless and generally safer. Also, hydraulic clickers can handle thicker lays of cloth. The top limit for a mechanical clicker is a one-inch lay. A hydraulic clicker can stamp out a 2½ inch lay-up.

In making a fabric lay, the fineness or thickness of the cloth must be considered. Obviously, it is not possible to lay-up as many bulky rib sweater-strips as fine gauge knits. Generally, mills lay-up as many as 36 fine cut interlock Ban-Lon sweater-strips or up to about a dozen three-cut bulky rib sweater bodies. Each mill actually must determine for itself the lay-up depth which is most practical for its particular operation. An excessively deep lay-up would at best result in a poor cutting job; at the worst in damaged sweater-strips.

Dies used in die cutting are manufactured of one-quarter inch thick steel treated with an oxidized finish to prevent rusting. The dies are so constructed as to stamp out notches or slits
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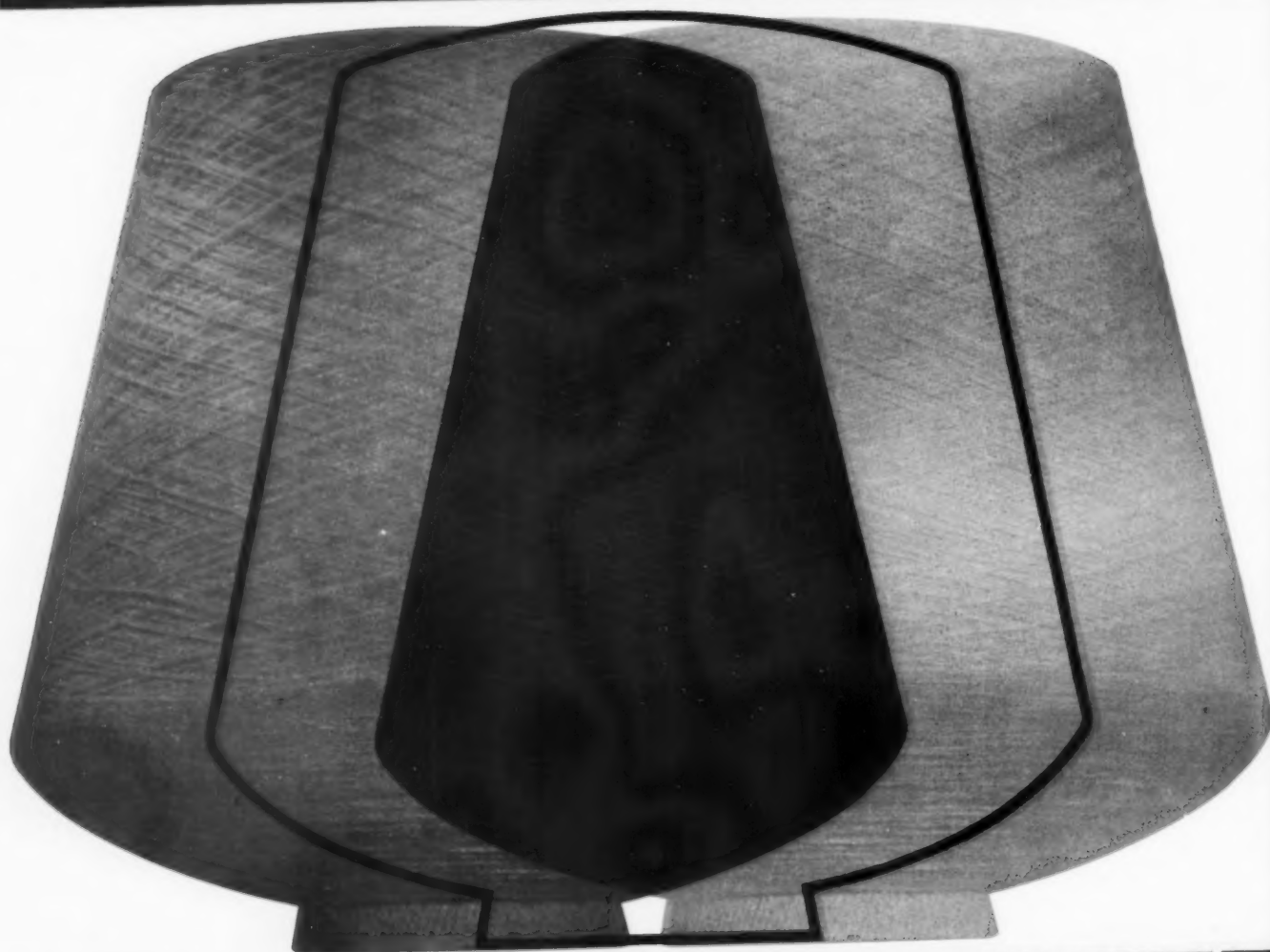
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Yardgoods Equipment

Pattern Scope Of Fouquet Model SMJ Machine

FIGURE 1 shows a point paper notation of a two-color jacquard design which can be knitted on the SMJ machine and serves to enable the technician to set out the pattern blades in the pattern drums. The first half of a symmetrical design is sufficient to enable this to be done. This half is formed by the rising line of butt levels 1-37 of the selector jacks (3). The falling line of butt levels 36-2 then forms the mirror repeat of the pattern as shown in Fig. 1.

The pattern blades (12) have their bits broken off according to the design and are then set out in the various pattern drums in a sequence which depends upon the course in which they are required to be active. Fig. 1 contains the sequence for both sides of the design. The first column of figures on the left-hand side of the design, to be read upwards, gives the number of courses which form the height of the pattern repeat. The second column of figures gives the numbers of the feeds in which the ground color is selected to form loops. (Empty square in the design represent loops knitted in the ground color.) The third column of figures gives the number of feeds which knit with the design color (in Fig. 1 squares filled with X indicate loops which have been formed with the design color).

Shown on the right-hand side of the pattern draft are the numbers of the pattern blades in the pattern drums for the first, second and third repeat. Also shown below the pattern draft is a pattern blade as inserted into the pattern drum II.

It is advisable to draft the design on 3-mm. squared paper as shown in Fig. 3, because when the arrangement of the butts on the pattern blades coincides with the squares on the paper, it is much easier to read off from the draft the information necessary to break off the bits from the blades. Messrs. Frauz and Plank supply a simple hand tool for breaking off the pattern bits, and they also supply a "breaking off" machine for use on both the blades which control the knitting with the ground color and those which control knitting with the effect color. When setting out the pattern blades, the drums at the

odd feeds which knit with the ground color receive their blades first and this is followed by inserting into the drums at the even feeds which knit with the effect color the appropriate pattern blades. In this way two feeds are required to form one complete pattern course, so that on a 24-feed machine one complete revolution of the machine produces 12 courses, of the two-color design.

Twenty-four pattern blades are required in order to fill trick 1 at all pattern drums. For courses 13-24 again 24 pattern blades are required which are inserted into trick 2 of the pat-

tern drums. The next 24 pattern blades for courses 25-36 are inserted into the third trick in the pattern drums. For the entire height of the repeat of 96 courses of the design shown in Fig. 1, tricks 1-8 in the pattern drums are thus set out. The pattern blades or the tricks in the drums in which they are inserted are shown on the right next to the point paper notation in Fig. 1. Since the pattern drums have 24 tricks, the blades in this case are set out in three repeats round the drums.

The dial needles when knitting colored jacquard design are set as follows: The stitch cams of the dial cam race are set centrally in such a way that cylinder and dial needles alternate in knocking over their loops (2x2 position). In order to balance the fabric, two feeds where

the long dial needles knit alternate with two feeds where the short dial needles knit. By setting the well-known "bird's-eye backing" in a selective manner, the back of the fabric exhibits vertical stripes. The settings are, of course, effected on the dial.

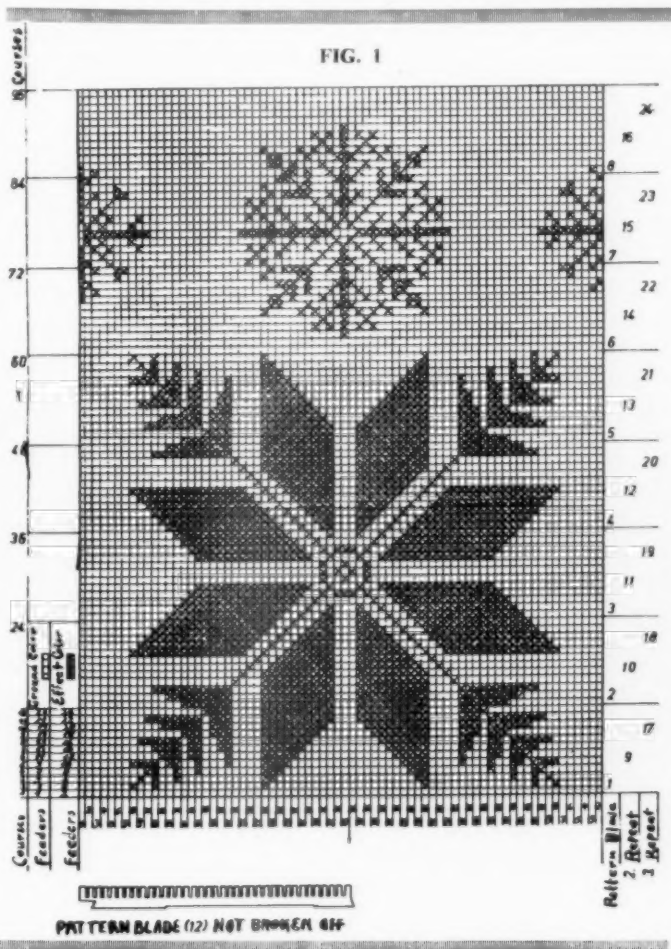
When knitting three-color jacquard fabrics, the arrangements are very similar to those used for two-color jacquard. When knitting these designs, however, three feeds are necessary to form one complete pattern course. This means that one complete revolution of the machine produces 8 courses of the fabric. The largest possible pattern height comprises 196 courses (8x24).

The ground color is knitted by feeds 1, 4, 7, 10, 13, 19 and 22, while the effect color 1 is knitted by feeds 2, 5, 8, 11, 14, 17, 20 and 23, and the effect color 2 by feeds 3, 6, 9, 12, 15, 18, 21, 24. With three-color jacquard designs normal bird's-eye backing is used for the reverse side of the fabric.

Fig. 3 shows the notational portrayal of a uni-colored or two-colored raised design. These samples, too, require three feeds to knit one complete pattern course, so that here, too, the maximum pattern height comprises 196 courses. As opposed to the procedure with regard to the breaking off of pattern bits on the blades for knitting two-colored jacquard designs, it is necessary when knitting raised designs to break off butts on the pattern blades twice, in order to produce at two feeds knitting the effect color an accumulation of loops for the raised effects.

The method of knitting with the dial needles when knitting raised effects is as follows: At those feeds where the ground color is being knitted, i.e., at every third (1, 4, 7, 10, 13, 19, 22), the dial needles knit bird's-eye backing so that the short and the long dial needles alternate in forming loops. The cylinder needles which have been selected according to the design, form at the same time as the dial needles, loops in the ground

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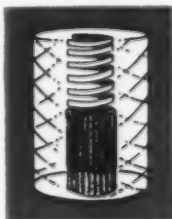




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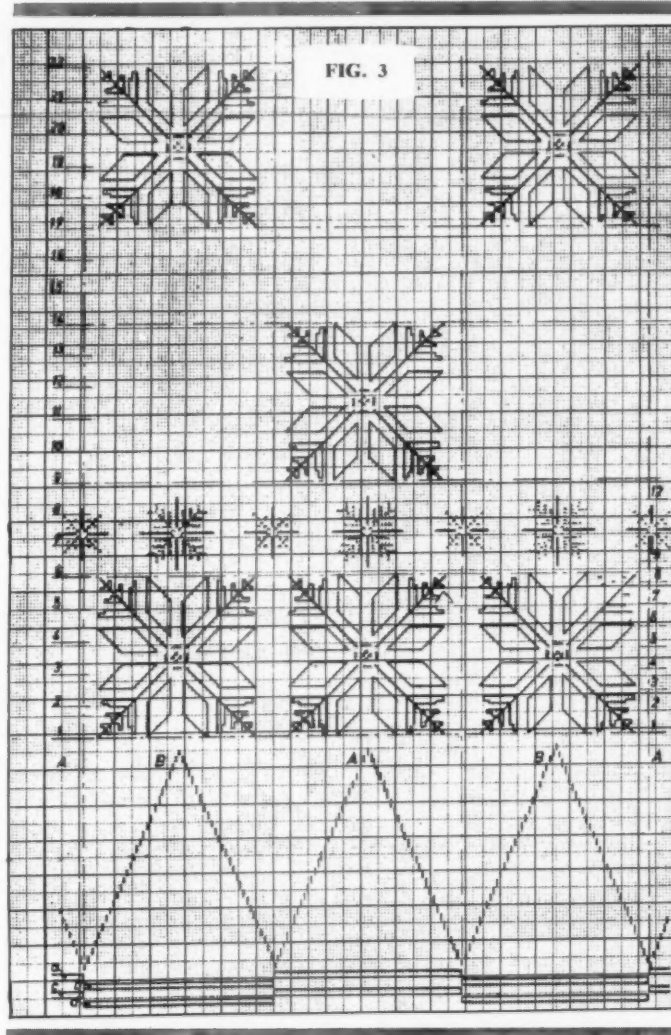
The stitch cams in the dial cam race are set in such a way that at the above-mentioned feeds, dial and cylinder needles alternate in knocking over. At the feeds which lie in between, the cylinder needles which have been selected for knitting according to the design (feeds 2+3, 5+6, etc.) form the raised loops in the effect color while the dial needles idle. The dial clearing cams at those feeds are set for idling and the dial stitch cams are moved forward, so that there is no lowering of the needles. The elimination of patterns or parts of patterns cannot be carried out when knitting raised designs, since the effect color is never knitted up by the dial needles.

Bluffing Out Two-Color Jacquard Designs

Fig. 2 shows a larger area of patterned fabric according to Fig. 1. It also shows the arrangement of the selector jacks with eliminator butts in order to illustrate a few "bluffing" possibilities. Individual pattern repeats are designated alternately A and B for the purpose of describing "eliminating" possibilities. The arrangement of the pattern butts and eliminator butts on the selector jacks is shown below the pattern draft.

In the pattern repeats marked A, butts b and d are broken off and butts a and c remain. Two out levels thus remain in each repeat. Fig. 2, however, shows that these are displaced by one level against each other. This arrangement of the eliminator butts has the advantage that at each feed, short eliminator levers can be used on the butt levels a and b and long eliminator levers can be used on the eliminator butt levels c and d (10a and 10b). The possibility is thus given to eliminate as desired not only the patterning in the repeats A and B, but also to introduce a selective knitting of all loops in the repeats concerned with the ground yarn and the effect yarn.

With this arrangement, there is no need to exchange short and long eliminator levers. There is entered on the left-hand side of the pattern draft shown in Fig. 2 a column showing the figures 1-22. These indicate the number of revolutions of the cylinder of the machine



which are required to produce the two-colored design shown in the diagram. The height of this pattern repeat requires eight full revolutions, where revolutions 1-5 produce the large design figure and revolutions 6-8 knit the small design figure.

The size of the pattern figures when drafting the design should be chosen in such a way that they fit within a certain number of cylinder revolutions. In this way the bluffing out of parts of a design can start and finish with individual cylinder revolutions. According to Fig. 2, the first eight cylinder revolutions are knitted normally without bluffing, so that the design figure appears in all pattern repeats. The eliminator levers remain out of action, since there are no pegs in the bluffing drums to actuate the levers. In

order to eliminate the design figures in the repeats marked B, the eliminator drum is racked forward for the ninth cylinder revolution simultaneously with the pattern drums. By means of suitably broken off bluffing blades in the bluffing drums, the long eliminator levers (10b) acting on the eliminator butts d are brought into action at the feeds 1, 3, 5, 7, etc., which knit the ground color. The latter bring into action all cylinder needles in the repeats B so that the ground color appears over the entire repeat.

At the feeds knitting the pattern color, 2, 4, 6, 8, etc., the short eliminator levers (10a) acting on the eliminator butts at level b are brought into action, so that at these feeds within the area of the pattern repeat B all cylinder needles are put out of action. This means

that at these feeds the effect yarn is only knitted by the dial needles.

After the machine has made five revolutions, the large design figure in the repeats A has been knitted, so that before the fourteenth revolution of the machine is commenced the bluffing drums are again racked forward. This rack also causes a change in the position of the long eliminator levers (10b) and the short eliminator levers (10a), the former acting on the eliminator butts c and the latter on the eliminator butts a, so that during the following three machine revolutions, the small design figures are bluffed out round the entire circumference of the machine. After the 16th and up to the 21st revolution of the machine, the short and the long bluffing levers of the butts b and d are put out of action while those for the butts a and c remain in action. This causes the bluffing out of the pattern in the pattern areas of the repeats A so that the pattern figures appear in the fabric displaced by one pattern width.

Fig. 2 shows the setting out of the eliminator drum with the eliminator blades which have their bits broken off in the correct order.

The eliminator installation is so versatile that it is possible with one design to produce a range of variations over the whole fabric piece. The pattern shown in Fig. 2 is used as a basis to describe the new method of patterning. The novelty consists in knitting these patterns in three colors, where the large design figure in, for instance, the repeats marked A are produced with the first effect color while those in the repeats B are knitted in the second effect color. In this arrangement, it is necessary to knit the small pattern figures in the repeats A and B only in one effect color, either 1 or 2. In the repeats which follow, it is possible to arrange that the effect colors appear in the fabric in a displaced manner so that the large pattern figures in a horizontal and vertical succession change their effect colors. Moreover, there is the possibility to eliminate the pattern figures in the same proportions as shown in Fig. 2. It is important in this connection to see

(Continued on Page 9)

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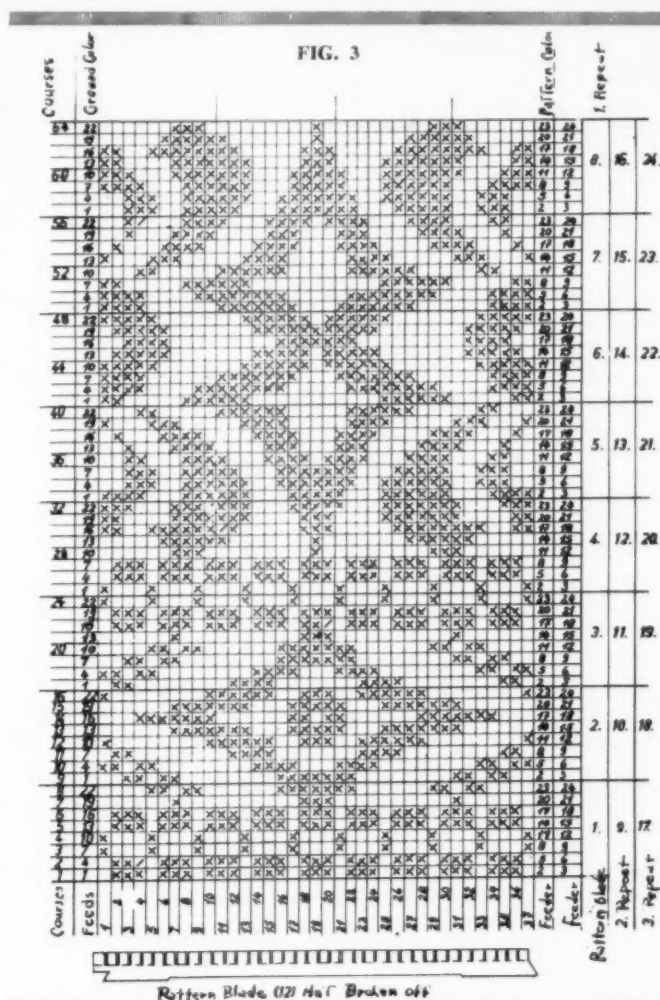
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that the arrangement of the pattern butts as shown in Fig. 2 and the arrangement of the eliminator butt levels remains unchanged. The pattern is drafted in the same way as for two-color designs, with the only difference that in a three-color design three feeds are necessary to knit one complete pattern course and allowance is made for that when drafting the height of the pattern. This means that one revolution of the cylinder produces eight complete courses and the entire height of the repeat is 96 courses, thus requiring 12 revolutions of the cylinder. When knitting two-color designs, the large pattern figures are knitted in two revolutions of the cylinder (5x12 courses). When knitting three-color designs, it is arranged that the large design figures lie within the area of cylinder revolutions 7.5 and the small figures lie in the area of cylinder revolutions 4.5.

It is necessary when knitting this design that there is a change at the feeds 13-24 during the eighth revolution of the cylinder while feeds 9-12 must be changed during the ninth revolution of the cylinder. At the remaining feeds, so-called blind racks are carried out; that is, eliminator blades are inserted into the bluffing drums which do not effect a change. Shown on the right-hand side of Fig. 2, this set-out for one repeat height is shown.

The pattern drums have to be set out with pattern blades in such a way that the height of the repeat is contained twice in the pattern drum. This means that of the three sets of pattern blades for the two-color set of blades, only two sets are used for the ground color. As far as the pattern blades are concerned, however, $2 \times 2 = 4$ sets of blades are required, so that, in addition to the three sets of the two-color design, a further set for the pattern color must be broken off and set out.

The method of patterning for three-color designs is similar to that used for raised designs. At the feeds 1, 4, 7, 10, etc., the ground color is knitted and at the remaining feeds alternately the two pattern colors. For the design figures, again pairs of pattern blades have their bits broken off identically and are



set out as in raised designs in two succeeding pattern drums. It is possible by means of the eliminator butt levels to determine to bluff out, for instance, the cylinder needles in repeat A, when knitting with the first effect color in pattern repeat B. It is, however, also possible to put out of action the cylinder needles in the repeat B when the pattern figure in repeat A is formed with the second color. The ground color of the design in the repeats A and B is knitted by the feeds 1, 4, 7, etc., as mentioned above, if the eliminator butt levels remain inactive at these feeds. The pattern blades for the ground color for the two-color design shown in Fig. 2 can be rearranged in the pattern drums in such a way that the sequence coincides with the three-color patterning. In the same way, it is necessary to rearrange the pattern blades for the effect color in such a way

that at two succeeding feeds the same course of loops of the figure in the design is selected. If in the feeds for the first effect color the pattern repeats A are eliminated by means of the butt levels a the first effect color will appear in the repeats B. Repeats A and B are again selected at the feeds for the second effect color so that the eliminator butts B must be put out of action and the second pattern color appears only in the repeats A.

Conversely, it is possible to knit with the first pattern color in the repeats A and the second pattern color in the repeats B, and this can be done by rearranging the patterning activities of the butt levels a or b.

The large design figures are produced during the revolutions 7, 5 of the cylinder. A transfer to the small figures in the design requires a new arrangement of the work of the eliminator

butt levels. The small designs can only be knitted in one effect color because the eliminator butt levels always meet within one figure. If the first effect color is selected, then the repeats A and B are brought into action at those feeds which knit with the first color; and at the feeds of the second color, the repeats A and B are brought out of action by means of the eliminator butt levels a and b.

Conversely, the second color makes its appearance when at those feeds which work with the first color the pattern is bluffed out, while it is worked in those feeds which knit with the second color (in the repeats A and B). Entire pattern figures can be bluffed out in the same way as for two-color designs.

In this case, eliminator butt levels c or d are activated in those feeds which knit with the ground color so that all cylinder needles in one repeat go into action. The effect colors are completely eliminated by means of the eliminator butt levels a and b and are knitted by the dial needles only. With this method of patterning, too, it is possible to change from the ground color to any one of the effect colors, thereby creating further patterning effects.

When knitting three-colored designs, the dial needles are made to knit ordinary bird's-eye backing, thus causing an automatic changing of the colors.

It is possible, in place of pattern figures, to knit colored stripes or intarsia designs by means of the eliminator butt levels. For knitting stripe designs the patterns selected from the pattern drums are completely bluffed out and a pattern color is then knitted straight through both pattern repeats A and B. If it is required, for instance, to knit a stripe with color 1, then the eliminator butt levels a and b are activated at those feeds which knit the ground color and color 2 so that all cylinder needles are put out of action.

At the feeds which knit with color 1, all eliminator levels c and d are depressed so that all cylinders are in action and knit with color 1.

It is also possible to knit stripes with the ground color in

(Continued on Page 52)



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Texturized Yarns

Textile Institute Conference Papers Summarized—Part I

HARROGATE, England — Modified or textured filament yarns were the subject of a series of papers presented here at a Textile Institute conference. Papers presented came from British, American and Czechoslovakian members of the institute, illustrating the now international interest the subject arouses. A digest of the various papers is presented below:

The Technology of the Production of False-Twist Textured Yarns

In introducing this paper by M. S. Burnip, English Sewing Cotton Co., Ltd., and J. W. S. Hearle and G. R. Wray, both of Manchester College of Science and Technology, it was said that there is a lack of published information on the influence of processing conditions on the properties of stretch yarns and on the interactions between various processing parameters.

Parameters which can be expected to have an influence on stretch yarn properties are yarn type, amount of false-twist inserted, setting temperature, yarn tension, and yarn speed. The paper was devoted to investigations carried out on nylon 6.6 multifilament yarn; yarn speeds being determined by the rate at which twist could be inserted. Effects of changes in twist, temperature, and tension were investigated. The false-twist was inserted by a pulley mounted in a rotating tube, the yarn being heated by contact with a curved hot plate. Two methods of controlling yarn tension that used on the Fluffon machine and that used in the Scragg C. S. machines, were used. The first was referred to as the constant-tensioning method and the second as the constant-extension process.

Type of Apparatus

Although initially a Falspin unit attached to one deck of a conventional upwister was used, the limitations of this set-up ruled out the introduction of tension-measuring devices into the yarn path, so a more versatile experimental apparatus was built. This used the full height of the upwister to give an unobstructed threadline. The apparatus as used in the constant-tension experiments is shown in Figure 1. The rollers take the yarn from the supply package against the tension imposed by the gate-tensioner. Degree of

tension is increased by adding weights to the scale-pan. Yarn moves through the electrical heater box (this heater was like those fitted to the Scragg CSI unit) and through the false-twist spindle, to be finally wound onto the take-up package by frictional contact with the cork-covered drum. There was five per cent overfeed between the rollers and take-up package.

In the investigations conducted with the constant-extension processing method, an additional set of feed rollers was inserted above the gate-tensioner before the heater. A chain drive connected this set of rollers with the first set, and degree of overfeed or underfeed could be varied by substituting rollers of different diameters. This range of substitution varied from 20 per cent overfeed to 20 per cent underfeed. Thus the gate-tension merely controlled the yarn before entering this second set of rollers.

MANRA Transducer

A MANRA yarn-tension transducer measured tension in the threadline. Although this has a response of 200 cycles per second, in these investigations all tension fluctuations above three cycles per second were damped out by using a pen recorder with a slow speed of response to eliminate all unwanted signals and interference. Because of these precautions and the careful method of calibration, the 9/12 inch traces taken at each point of measurement were completely smooth and only the means of tension recorded.

Details of the tests first carried out on the yarn samples were given. These samples were examined for visual appearance, breaking load and breaking extensions, residual shrinkage, stretch, work recovery, specific volume and bulking factor, weight per unit length. The yarn used throughout the tests was 70 denier nylon 6,6, 34 fila-

ments, with 0.5 t.p.i. with initial S twist. False-twist spindle speed was maintained at 45,000 r.p.m.

Details about investigations into processing tensions, distribution of twist, and yarn properties were given, to be followed with the results and conclusions obtained.

Three Variables

It was said that yarns processed at constant tension are subjected to three variables during texturing. These variables are processing temperature, twist and pretension. Pretension has a significant effect on tension developed in the yarn during processing and influences the stability of the threadline so that at extremely low pretension values, below c.4g, ballooning occurs beneath the false-twist spindle and the threadline breaks.

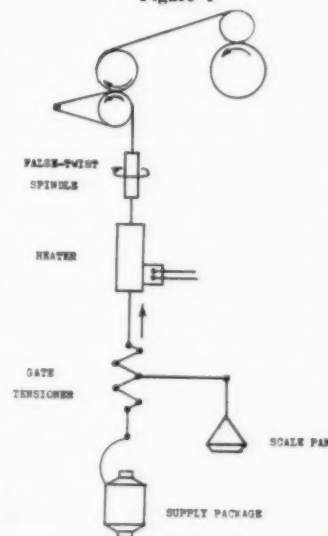
Processing temperature, and the amount of twist inserted during texturing are not reflected in the tension developed but show markedly in the appearance of the resultant yarn. Low temperatures produce yarns with badly defined crimp, and the yarns have a stringy appearance and lack crisp handle. High temperatures give weaker yarns, owing to degraded polymer. Fusion of filaments takes place at temperatures near the melting point of the polymer.

High twist is used for specific applications (for example, in corsetry) but twist at such levels destroys the bulky appearance of the yarn. Low twist gives stringy yarns with low crimp. Breaking strength is most influenced by processing temperature, being reduced by roughly 10 per cent by normal processing conditions. This rises to 50 per cent at excessively high temperatures. Breaking extension increases with processing temperature until the polymer is degraded. It can, said the authors of the paper, reach 60 per cent more than its original value.

Effect of Twist

Pretension effects breaking strength and extension, as does its interaction effects with processing temperatures. But twist even at high values does not ef-

Figure 1



fect breaking strength, yet tends to help in increasing breaking extension up to optimum values (but reduces it at excessive twist levels). Residual shrinkage drops as processing temperature is increased. Twist and pretension tend to increase residual twist as they increase.

These factors assume importance when one considers that most garments made from false-twist yarns are ultimately passed through some wet heat-setting or pre-boarding heat treatment.

Having once been stressed the crimped filaments of a false-twist yarn assume a different configuration and the resultant stressing reduces the work recovery of the yarn but not as much as the initial stressing. Samples take a long time to become permanently conditioned; one reason for their popularity in the hosiery field. The yarn shows better recovery for higher processing temperatures, but it is likely that this would be reduced if processing temperature became too high. More pretension produces increased work recovery but the effect of twist seems to produce a maximum beyond which more twist produces a reduced value of recovery.

(Continued on Page 13)

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NEW ECONOMIES in Knit Goods Processing

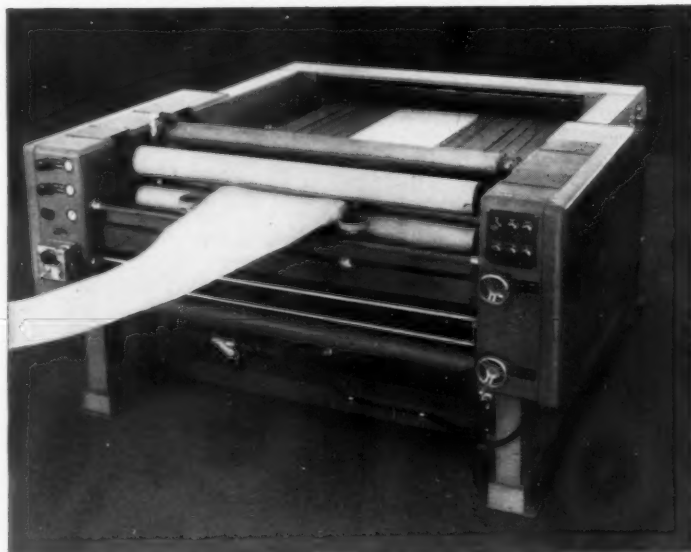
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Bulking Factor

Degree of changed specific volume obtained by texturing can be as high as a 20 or 30 "bulking factor". These are a little randomly scattered, but in the range over which the tests were determined specific volume seemed to reduce slightly with increased processing temperature. (Nevertheless, it is possible that at lower processing temperatures such high values of specific volume would not be achieved; results for percentage increase in yarn diameter after texturing suggest this also).

Effects of pretension and twist on specific volume are rather difficult to assess in these tests. Photomicrographs of yarns processed with excessive and small twist indicate that it will increase up to a certain point with increased twist, then fall away as twist is increased further. Pretension seems to follow a similar line of effect.

Yarns thermally processed only are subject to a contractile stress, which increases with temperature up to a maximum between 180°C and 230°C (depending on overfeed). Overfeeding the yarn reduces the contractile stress.

Yarns textured under constant-extension processing conditions show similar trends to thermally treated yarns, but a distinct lack of maxima was observed. Tensions in the yarn vary according to the position at which they were measured. It was noted that the false-twist spindle added some 10 to 12 rpms to the tension developed. The false-twisting caused a redistribution of the tension in the threadline so that the values of tension developed for the positions above and below the heater differ from those obtained for similar positions during thermal processing.

In conclusion it was declared that the experiments emphasize the importance of close control of the various parameters if fully reproducible stretch yarns are to be produced. Also, it was stated, the production of the best yarn for a particular end-use would be better understood if more was known about the effect of these variables, tension, twist and temperature. This paper was described as dealing with the beginning of such studies.

Terylene Bulk Yarns—This

paper was prescribed by C. S. Bruce, of Imperial Chemical Industries Ltd. There are three main methods used for bulking continuous filament Terylene (Editor's Note: this fiber is the British equivalent of Dacron). Because of certain similarities in the properties of the resultant yarns, he classed false-twist and stuffer-box crimped (Ban-Lon) types together, leaving air-textured Terylene (of the Taslanized type) as a separate category.

He dealt first with the group containing false-twist yarns. He said that increasing heater temperature gives increased yarn bulk, higher potential shrinkage, higher extensibility in the relaxed condition, and increased dye uptake. But handle of fabrics produced from these yarns becomes harsher. With contact heaters, with a spindle speed of 40,000 r.p.m., usual temperature range for Terylene processing is 180-210°C, those yarns treated at the lower end of the range being most suitable for knitted outerwear, where softness of handle is needed. It is important, he said, that temperature should be very accurately controlled because variation adversely affects uniformity of all yarn properties mentioned. He showed by a graph how a tiny temperature change can produce appreciable differences in dye-uptake.

Increased twist gives greater yarn bulk, higher potential shrinkage and higher extensibility in the relaxed condition.

Boucle Effect

With twists lower than those calculated in this way the yarns have a pronounced looped appearance and give a boucle effect with soft handle in a knitted fabric.

Overfeeding yarn through the false-twist zone also gives more bulk, but retention of crimp under loading is proportionately reduced. Also a drop in threadline tension may result in twist control loss. When threading Terylene filament yarns, one does not usually have to pass the yarn round the spinner more than once as fiber/metal friction is high enough to give twist control.

All the false-twist yarns examined showed some dye-uptake irregularity. This would suggest dyeing in dark shades, but pale and medium shades are obtainable, particularly when plied yarns are used.

The Ban-Lon method is the only stuffer-box bulking method applied commercially to Terylene in Britain. Owing to certain problems, it is necessary to insert three to six t.p.i. in the yarn before processing, and this twist inhibits bulking. Broken filaments in singles Ban-Lon yarns indicate the friction between Terylene and the bright surface over which it passes during the processing. Another factor may be the formation of deposits inside the tube. It is thought that much variability in these yarns stems from the intermittent feed of yarn to the stuffer tube and the possibility that during setting, yarn touching the walls of the tube gets a different heat treatment to that received by the rest of the yarn. These snags are said to be responsible for the limited development so far of Ban-Lon Terylene yarns. Nevertheless, knitting and finishing techniques have been developed for commercially successful products.

Better For Knitting

Both false-twist and Ban-Lon Terylene yarns are more suitable for knitting than weaving. Stitch length can be increased and the general looser nature of the knitted structures enables the yarn bulk to be developed at fairly low scouring temperatures. The false-twist yarns are used mainly in half-hose, but special types have been developed for men's outerwear. Ban-Lon Terylene is used in circular interlock fabrics, where the excellent pleating qualities of this polyester fiber are an advantage, and in men's outerwear.

Early development work in full-fashioned garments with Ban-Lon was halted by irregularity of bulk and dye take-up. Ladies' cardigans and twin-sets have been produced on 21-gauge units with lubricated 4/75/48 denier false-twist yarns, giving regular fabric appearance and soft full handle. These garments have not been produced in any great commercial quantity because of lack of stitch and surface clarity.

False-twist and Ban-Lon yarns have been used in various deniers for non-fashioned flat-bed knitting. Knitting construction decides correct choice of denier for machine gauge. The author gave the following guide:

Gauge	Total denier
7	600-900
8	450-600
10	300-400
12	200-300
14	150-200

Fancy constructions have helped to obscure color irregularities. Long floats have to be avoided in the construction. In lightweight garments, panels are finished before assembly, but heavy, tight, panels can be assembled and then finished.

In knitting of tubular garment lengths, careful choice of construction has to be made if the usual 18 and 20 inch machines are used owing to the markedly higher potential shrinkage of these false-twist and Ban-Lon yarns.

Knitting Precautions

Plain and rib constructions give excessive width shrinkage. Interlock, or constructions using tuck stitches, are more suitable.

Plain interlock constructions account for most bulked yarns of this type, for blouses and summer dresses. On 20 x 20 n.p.i. machines 1/100 and 1/150 denier Ban-Lon yarns are used (singles false-twist yarns are not suitable because of their torque). Striping faults are still common, and Robofsky pleating, embossing, and so on are used to obscure them.

Crimplene Yarns

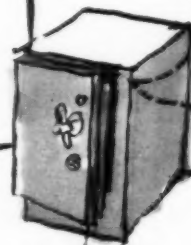
Mr. Bruce outlined the advantages of having a stabilized false-twist yarn, yarn which has lower bulk, shrinkage and extensibilities. Outlining the original Saaba method, and mentioning the Heberlein modification, he went onto Crimplene, the Terylene stable bulked yarn produced by the Cheslene & Crepes Ltd. process to which I.C.I. bought the British rights in 1959.

Shrinkage of Crimplene yarn on cone is about eight per cent and bulk is stable in the yarn as made. Thus, Crimplene yarns can be knitted much closer to finished size and texture and stabilizing treatments during finishing are usually not needed. Dyeing, too, is simplified. Crimplene is dyed under pressure on the package taken from the Crimplene unit, re-wound, doubled if necessary, cone wound and oiled.

(Continued on Page 15)

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Crimplene yarns have low extension under small loads even after relaxation of dyeing. Therefore, the yarn is less sensitive to tension irregularities during knitting than other types of bulked yarns. The author stressed the suitability of the Crimplene yarn in hand knitting.

The non-torque character of Crimplene yarns, in contrast with the torque character of false-twist and Saaba yarn, enables them to be used as singles on circular equipment and produces good stitch clarity (Ban-Lon yarns are also non-torque).

Speaking of weft knitting, he said that optimum knitting performance is obtained under conditions similar to those used for other bulked filament yarns. Cones must be accurately and uniformly wound and yarn, dyed or undyed, must be lubricated. Yarn tension should be as low and uniform as possible and ceramic guides are recommended.

Some mechanical shrinkage takes place when knitting tensions are removed, but shrinkage during finishing is extremely slight. The general behavior of the fabrics during knitting and

finishing is likened to that of wool. The fabric is not sleazy, he said, nor prone to snagging during handling, and stitch distortion during handling and finishing is reduced. With certain fabric constructions it is possible to make-up garments before dyeing and finishing. Mr. Bruce claimed that fabric yield is greater than with false-twist and Ban-Lon yarns of the same nominal denier.

Crimplene Knits

Crimplene is technically and economically most competitive in singles dyed form and is ideal for the jacquard jersey fabrics. Such fabrics have excellent drape, do not bag, and wash-and-wear well. Repeat striping in self-colored fabrics is encountered, particularly when knitting interlock or double pique structures on multifeed machines. It has been suggested that irregular yarn bulk contributes to this fault and improvement has been obtained by modifying processing conditions.

Although high-shrinkage bulked yarns can be knitted only in a limited range of structures on garment-length machines, this

restriction does not apply to Crimplene.

The low shrinkage of Crimplene is useful in the full-fashioned field. Vertical organizations, such as those of Scotland, can use Crimplene as they use wool. Experience shows that relaxed knitting conditions are the most suitable on full-fashioned machines. Optimum conditions are obtained with a light spring-loaded cymbal, eyelet positioned six inches above the cone, and all other tensioning devices out of action, the yarn path being as direct as possible. Fiddles, gates, front rods and wires, and so on, are by-passed, although spanners are used to control the selvedge yarn. These have to be accurately set. In drawing the loop, enough yarn has to be landed to give a relaxed loop on the sinkers as they withdraw, thus preventing rolling of yarn in the sinker loop.

A 75/48 denier yarn gives a garment with good soft handle, but if a firmer handle is needed a 75/36 denier yarn should be used.

Although good rib trims have been produced on Cotton's Patent rib units, V-bed flat ma-

chines are commonly used. Flat-bed garment lengths are probably the most critical of those produced in Crimplene. The wide range of fancy stitches and rather loosely knitted structures used with such yarns are prone to snagging during wear. Thus great care is required in selecting fabric density and stitch to keep such effects to a minimum.

Dyeing Suggestions

Discussing finishing of knitted Crimplene fabric, Mr. Bruce said that garments in dyed Crimplene are usually lightly scoured and given a simple press finish. Jersey fabrics are scoured, this being followed by stentering at the open width at 130-150°C to ensure good crease-resistance and recovery properties. Piece-dyed goods are not usually stabilized before dyeing, although with some constructions a steam treatment may be needed to avoid dyeing creases.

Most of Mr. Bruce's remarks about Taslan-Terylene dealt with woven fabrics. He said that little experience has been gained either in warp or weft knitting such yarns.

(To Be Continued)

Management

Inventory Control Via Statistical Forecasting Techniques

By WILLIAM R. EVANS

Partner, Stevenson, Jordan & Harrison
Management Engineers and Consultants

RECENT techniques for scientifically controlling inventory through statistical forecasting has released a considerable amount of money formerly tied up in inventory. This has been achieved by reducing "stockouts" and "closeouts" and by anticipating needs in conjunction with the economics of production. Improved customer service has resulted in the knit goods field.

Scientific inventory control is not necessarily a complex subject. Simplified applications have been and are being installed. These are easily understandable so that the management of inventory readily reflects current data for management decisions in the pricing, costs and inventory considerations that are in constant interplay.

Adequate control and planning assistance is not possible using a single control technique for all the items in the product mix, for the mix is comprised of two categories of items with completely different sales cycles and obsolescence risks. Tech-

niques are required for each category. These categories are designated as:

1. Basic items—basic in style and color.
2. Novelty items—novel in style, color, or both.

The techniques need to facilitate predictions, projections and control. The predicting techniques need to be designed to determine the original sales by item through the extension of past knowledge, analogy, and trend analysis. The predictions should aid in planning the lines.

The projection techniques need to modify, when necessary, the original predictions as sales data becomes available. The projections must verify or cor-

rect the predictions in the light of the new sales data. Probability limits must be part of the projection technique to determine when the variation in sales data represents a real and not random departure from the sales pattern.

A mythical scientific inventory control system is described to determine the stock and service levels for basic items. All sales, inventory, and cost figures are hypothetical.

Basic Items—The basic items inventory can be determined and controlled by a scientific inventory control system. Items in this category are sold throughout the year, year after year. These items are typical inventory items with seasonal demand patterns and growth patterns.

The inventory system determines the answers to the two questions essential to good control: (1) How much product should be placed into work? and (2) When should the work

be placed into manufacturing? The decisions are made in accordance with management's policy regarding cost, profit, and service.

The decision determining how many items will be manufactured during a single manufacturing order is the quantity known as the Economic Order Amount. In all inventory—producing (purchasing) combinations, there exists an amount which costs the least to produce or purchase. There always exists a minimum cost balance between manufacturing costs and inventory carrying charges. Manufacturing order quantities shifted an appreciable amount from this minimum point, in the direction of either greater or smaller inventory (fewer or increased manufacturing orders) increase inventory costs (reduce profits).

The decision determining when to reorder—The Reorder (Continued on Page 17)



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Point—is that quantity in stock at which an order for an E.O.A. of product is placed with manufacturing. The point (quantity) is determined as a function of the sales demand and management's service level policy. The service level is defined as the allowable number of stock-outs permitted during a specified increment of time.

Data processing of the information resulting from the inventory system will be conducted weekly on the Open Stock items. These will be the items whose stock levels have dropped to or below the reorder point and for which a manufacturing order for an E.O.A. of product has been issued. Sales demand for these items will be examined to determine whether the demand pattern is changing. Seasonal demand patterns are incorporated into the system as are the growth patterns.

To establish the system, sales distribution curves by pieces and by dollar sales were formed. These curves rank the sales by dollar volume. As a consequence of these curves, we recommend that three levels of service (risk of a stockout) be established. There should be a Class A risk for the high dollar volume items, a Class B risk for the intermediate dollar volume items, and a Class C risk for the low dollar volume items.

Before describing several characteristics of the Basic Item sales data, a theoretical estimate of the dollar savings resulting from this system should be considered. Had the system been employed on the following mythical inventory situation of 501 items (an item is defined by the style and color) the sales classified into this category would have been serviced with the following inventory. The system would have required working stock of 86,549 pieces for the year. The Average Working Stock would have been

$$86,549/2 = 43,275 \text{ items}$$

The Average Working Stock is simply one-half the E.O.A. quantity. The safety stock inventory, while not given since the service level remain to be established, can be approximated in terms of the E.O.A. quantities. Three alternative

costs have been computed. The actual costs will lie in this range. The costs range is defined in terms of safety stocks equal to:

- 10 per cent of the Economic Order Amount.
- 30 per cent of the Economic Order Amount.
- 50 per cent of the Economic Order Amount.

The total inventory required by the system will be comprised of the average working stock (43,275) plus the Safety Stock. These quantities will be:

- 10 per cent E.O.A. S.S. = $43,725 + 8,655 = 51,930$ Total Inventory.
- 30 per cent E.O.A. S.S. = $43,275 + 25,965 = 69,240$ Total Inventory.
- 50 per cent E.O.A. S.S. = $43,275 + 43,274 = 86,550$ Total Inventory.

The approximate yearly inventory for the basic items was:

- March (end of quarter) 362,000 pieces.
- June (end of quarter) 300,000 pieces.
- Sept. (end of quarter) 231,000 pieces.
- Dec. (end of quarter) 119,000 pieces.

The average estimated inventory for the year was 253,000 pieces.

The average estimated dollars invested in inventory per piece was \$5.00.

These costs represent the manufacturing costs, or in theory, the variable costs.

The inventory difference that would have resulted if the system had been applied is the difference in the number of pieces held in inventory by the system and the actual number stocked. The average estimated dollar difference is the difference in the number of pieces multiplied by the variable cost of \$5.00. These dollar differences for the three levels of safety stock are:

- 10 per cent E.O.A. 253,000 — 51,930 = 201,070 × \$5.00 = \$1,005,350.
- 30 per cent E.O.A. 253,000 — 69,240 = 183,760 × \$5.00 = \$918,800.

- 50 per cent E.O.A. 253,000 — 86,550 = 166,450 × \$5.00 = \$832,250.

The estimated savings, assuming that the cost per dollar in inventory is twenty cents would have been:

- At the 10 per cent level—\$201,070.
- At the 30 per cent level—\$183,760.
- At the 50 per cent level—\$166,950.

Now we wish to discuss other effects of the system. The system develops cost bench marks for management against which decisions can be judged. Working stocks, safety stocks, and inventory costs are measured. Departures from these minimum cost bench marks can be assessed for their effects upon costs. For example, the cost of stocking a larger than required amount in inventory can be measured and used to determine the value obtained from the decision leading to increased inventory. A larger inventory must be justified by lower manufacturing costs, better service, and increased sales resulting from this action. Using the P/V cost concept it is possible to estimate the increased sales that would be required to recapture the added costs.

Other factors for consideration are those which should be weighed in determining the character and breadth of the basic line. The inventory cost of storing slow moving items that are manufactured in quantities in appreciable excess over the annual demand quickly consumes the profit margin. It may be advantageous for management to produce the slow moving items in the material with the strongest, most profitable sales potential by the technique costing least to manufacture. Assuming piece dyeing, the items could be produced in the single natural color and withdrawn and dyed in small quantities to specific colors. These items could be kept in a single color as an in-process inventory and dyed to meet E.O.A. conditions. Such a technique would keep the line at an acceptable breadth for style and color at a minimum cost.

Another use obtained from the system is its ability to pro-

vide a cost bench mark against which items can be compared to determine whether they are to be eliminated from the line. The inventory cost/profit ratio can do this objectively and automatically.

Another area of usefulness that results from the system is the predictable scheduling pattern that results. The system provides an estimate of the number of times a manufacturing order is issued for an item. With known service levels and E.O.A.'s, the total demand on any machine can be predicted. The probabilities of 1, 2, 3, etc., work orders and quantities can be determined. Improved scheduling should result.

In conclusion, consideration should be given to the advantages the system would have on the material inventory problem. Modification of the system to fit a purchasing-inventory situation can be accomplished.

"Buy American" Stickers Sent To NKOA Firms

(Continued from Page 1)

they be used to influence retailers.

Sidney S. Korzenik, executive director and counsel, recommended that the stickers be used on correspondence, invoices, packages and other materials sent to customers.

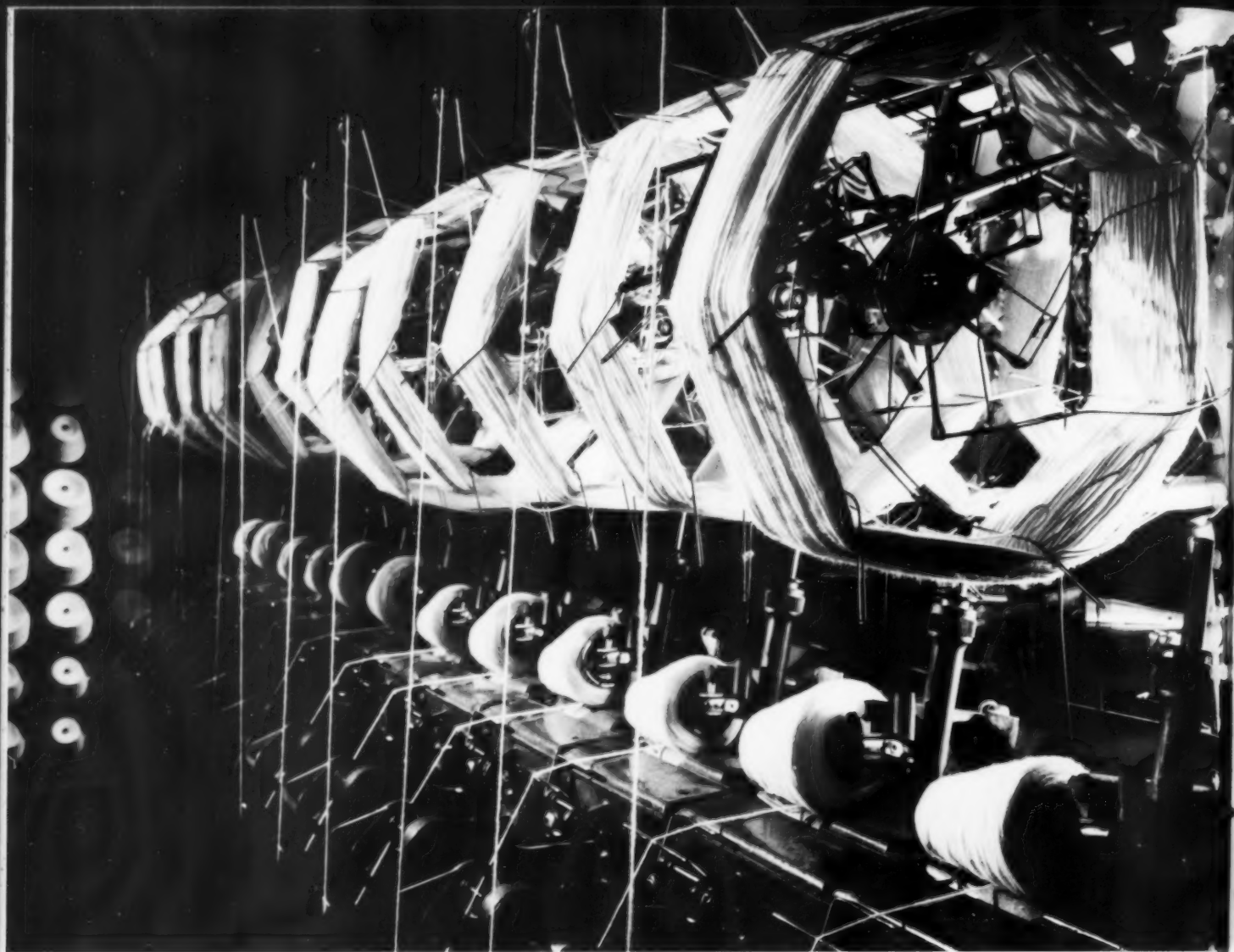
"The repetitive and cumulative effect of such a campaign may serve to make retailers increasingly aware that imports are troubling knitwear men who are their chief source of supply, and that our industry is concerned and watchful about what each retailer does. The retailer may himself in time come to feel that the 'Buy American' slogan is appealing to the mass consumers of the nation, and this may exert an inhibiting effect on his readiness to import," Mr. Korzenik said.

Trade Center Program

(Continued from Page 1)

ishing information on U.S. products.

The trade center program was started in 1960 under President Eisenhower and has been continued under President Kennedy. A center will be established in Bangkok, and President Kennedy has asked Congress for appropriations for three others to be situated, possibly, in Africa, Western Europe and Latin America.



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Men's Wear**Knit Shirts Boom In Ohio Spring**

CLEVELAND, O.—The first major touch of warm spring weather, reflected by a rush to the golf course and tennis courts, has been a swell in the sale of men's Ban-Lon shirts, Acrilan and, coming up fast, cottons.

The unusual and finer-style cottons appear to be gaining strength in many of the smarter shops, although synthetics continue to be the dominant sale item with Ban-Lon scoring heavily in the six to nine dollar area.

Ban-Lon Shirts

The Higbee Co. reported good turnover in a \$8.95 Ban-Lon shirt by Puritan. The Brookview full-fashioned knit is in 15 shades from oat to olive.

Halle Bros. featured a personalized Ban-Lon in the \$7.95 range and highlighted a wide range of colors and new collar treatment.

May Co. had a McGregor \$5.95 Ban-Lon with a stress on

the wash-and-wear feature. California entries, offering an all cotton knit, in the \$5.95 and up range are having much favorable reaction in retail areas. A V-neck sweatshirt by Hartog along with an "action-free" shoulder and underarm gussets in combed cotton knit did well at Halle's.

A links stitch Orlon shirt with detailing on collar and cuffs, along with Californian high-styled cardigan and pullover models in gold, white or pewter attracted much interest in Halle's Store For Men.

In some of the lower-priced ranges, \$2.00 model at Wm. Taylor's in 100 per cent Acrilan moved well.

The demand for Ban-Lon is being reflected, too, at the manufacturing level. Bamberger-Reinthal, looking ahead for fall, is offering a wide array of solid colors for long-sleeved, full-fashioned sweater-shirts of Ban-Lon. They are being offered with plain or fancy front—ribbed stitches or lacy openwork—fashion collar and three-button placket. On some colors, a con-

trasting color stripe detail is highlighted.

Company spokesmen say their line has been well received and that a good year is indicated. Bamberger-Reinthal is using unusual stitch possibilities and stitch combinations, along with fancy jacquards, novelty zig-zags and half-cardigans, along with many fisherman knits in original Aran Island patterns.

Many colors are in evidence in the sweater line, with olive green, orange and blues most evident. Many colors are in the form of a plain or texture stripe or jacquard design with a white background.

Novelty Trims

Company spokesmen say they've had excellent reaction to a bottom border treatment that continues the textured design.

In the brushed argules and jacquards, there are combinations of lamb's wool, mohair, and Orlon. Another grouping includes mohair blends with a brushed or shaggy texture. There is a general trend towards solids with an incorporated stripe.

Zipper Cardigan Leads Showing In New England

BOSTON, Mass.—New styles and colors were plentiful at the Men's Apparel Club of New England showing at the Parker House April 30-May 4. There were revivals of garments that haven't been seen in strength for a season or two. The zipper cardigan appeared to be the outstanding favorite and every knitting mill had a version.

Jacquards were big everywhere. Many have reproduced the Norwegian designs popular a few seasons ago. Wool and wool blended with mohair or alpaca was used widely and Orlon was generally used for the brushed fabrics.

Patterns and colors used for brushed sweaters had muted tones and the mixing of colors have been done in the stitching rather than in the fibers. Several knitting firms are promoting new ways of blending or treating wool for automatic washing.

(Continued on Page 20)

SPRINGTIME IS SWEATER TIME

Come spring, not so many years ago, and we packed away our sweaters in moth balls, with our long underwear, woolen socks and fur caps.

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Argyle patterns and wider stripes were the order of the day. Blue was in demand. A number of representatives said they found jockey red coming back strong and all lines included some tone of orange ranging from bright to rust shades. There also appeared to be a trend toward two tones of one color in a single sweater.

Cold weather and rain cut deeply into the traffic. Most representatives said bookings were running fair to moderate, but several said business was not up to what they had anticipated after six to eight weeks of good business on the road.

Rugby Knitting Mills used a toggle fastened with two simulated leather buttons on each for bulky cardigans, often combining toggles with a zipper. Jacquard designs used for these sweaters and also V-neck pull-overs combine ginger, amber and black; cactus, ivy and black and also black with smoke and blue.

Where stripe trims were used on cardigans of black, wine, ginger, medium blue and ivy, three colors were combined in a three inch border around the neck and down the front. These borders were doubled to provide additional bulk and strength. One V-neck pullover was trimmed with vertical stripes one and one-half inches wide and set six or seven inches apart with the stripe a deeper tone of the predominating color.

The Rugby collection of brushed sweaters included a convertible shawl collar with a zipper placket. These sweaters come in solids of camel, silver, mist green and charcoal tones. Where all-over designs are used, lines are sometimes broken with one color continued with another creating a subdued effect. All wool, and alpaca and lamb's wool blended have been used extensively by this firm.

Jack Charrette, Rugby Knitting Mills, New England, said there has been a very good call for five and six-button knit vests. These are in solids of camel, light oxford, medium blue and ivy and some are decorated with black piping about the arm opening. Jacquards and argyle patterns in brushed Orlon are also doing well, Mr. Charrette said, and a great many of the men's styles have been

duplicated for 4 to 12 and 10 to 20 sizes. A resurgence in the demand for cardigans was also noted here.

However, Brentwood Sportswear representatives found the situation exactly reversed and said that in New England 70 per cent of the pullover sales were for crew necks while high and seven-inch Vs were very good. Cardigans sell 40 per cent against a 60 per cent call for pullovers, Phil Kaye said.

One of the big things in the Brentwood line is a pullover made on hand machines offered in heather shades and in 12 different stylings. One of the intriguing fabrics used in this set is a very loose bulky stitch which appeared to be a combination of vertical and horizontal rickracking.

A revival in shaker sweaters was also noted here by Brentwood representatives. For these, this firm offers 16 shades in a blend of wool and Kodel mixed 65-35 per cent. This is the third season this firm has blended Kodel, made by Eastman Kodak, with wool. The purpose of the synthetic is to retain the shape and to prevent shrinking during the automatic washing. It has been used before in shirts and light weight sweaters, but this is the first season for its use in shakers.

Shaker cardigans were made with buttons and with zippers. One of the pullovers with a zipper close, had a three-way collar convertible from turtle to sailor to deep V.

Argyles were also said to be moving very well in this line and the broad jacquard chest stripes combine six colors. Brentwood colors for fall include dusty orange, fawn, jockey red and a variety of blues. Solid black sweaters were also said to be very strong, and Mr. Kaye said interest was good for a group of Continental styles distinguished by shorter garments with brief cuffs and hem. These styles were offered in brushed fabrics.

In addition to all wool, Brentwood Sportswear had a 100 per cent alpaca sweater and a selection of sweaters in a blend of 20 per cent mohair and 80 per cent Karroo Merino wool. This particular classifica-

(Continued on Page 23)

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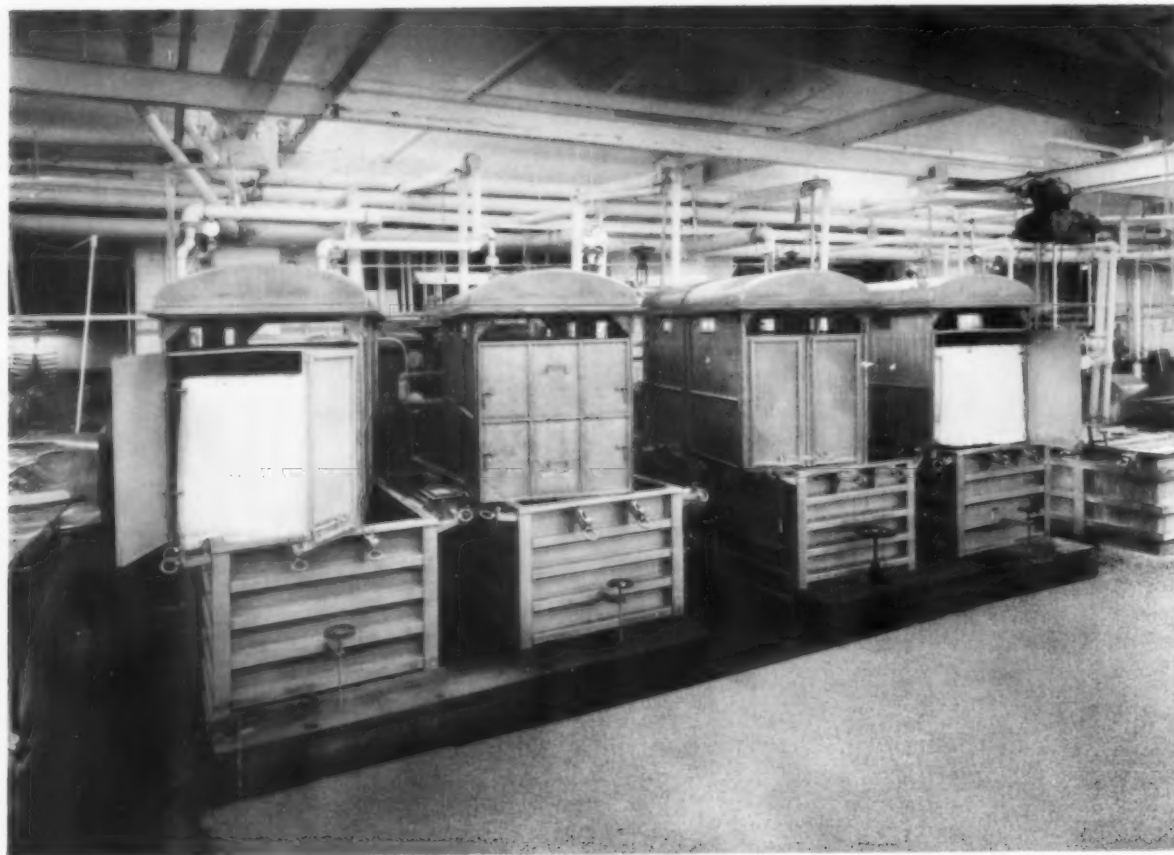


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tion denotes wool from northern Africa, where the iron in the soil gives it a reddish appearance. Representatives of this firm said that this gives wool from these parts a greater tensile strength.

One novelty in this firm's line is a light coat sweater with a zipper front and a mandarin collar. This had the collar, double border, hem and cuffs trimmed with a color contrasting with the body of the sweater, with a third color used for the center stripe. Combinations were: black, white and jockey; white, black and gold; loden, fawn and dusty orange and oxford, blue and loden.

Cardigan Trend

Henry Helfeld, Kandahar Sportswear, confirmed that a trend toward cardigans is developing and that the zipper close is extremely popular. Also that blue, of which this firm has a variety of shades, is outstandingly popular and demand is good for a new camel hair jacket sweater. Other color tones doing well for fall are luggage shades, and reds from jockey to apricot or tiger red. Kandahar jacquard patterns revert to ski designs but not exactly the familiar Norwegian symbolisms.

All wool and all Orlon predominate in the Kandahar line but there are also numerous offerings in blends with mohair, alpaca and camel hair. One very popular light coat sweater of Australian zephyr is made in a boucle stitch in solids of camel, white, red, black blue and gold and also hunter green, sage and medium oxford. This has two pockets and appeared to be ideal for wear under a jacket or on the golf links.

Novelty Coat

Another novelty coat sweater in this category was a copy of an import made up in a waffle stitch that had the appearance of quilting. On a black body, the trim on the hem, border and cuffs consisted of gold, used like braiding with a green center stripe. This jacket also came in white, olive and gray with appropriate contrasting trims.

Mr. Helfeld, who represents the Kandahar line in New England with Alfred Levi, said that for the fall season the firm was steering away from very heavy

bulkies and that the boatnecks and shawls had been replaced with the high V and crew.

Always a source of considerable new styling and fabrics, Puritan Sportswear used a washable suede trim on 100 per cent wool cardigans.

Suede Trim

The body of these sweaters is made up of vertical rick-racking and the suede trim edges the wide Continental collar and pockets and is used on the buttons. Tan shades are used with white, bark, autumn brown and olive and blue tone suede appeared with black, blue and dark oxford.

Paul Weinrebe, Puritan line, said that the collection of Ban-Lon cardigans and pullovers continues strong after two previous seasons and that the feature for 1961 fall is 100 per cent lamb's wool treated for automatic wash and dry. This is selling under the name Aqua-Knit and is offered in fifteen color tones including charcoal, gray, vicuna and a heath shade of the green family. This fiber has been made up in cardigans, V-neck pullovers and sleeveless styles and one of the most popular applications is a high V, seven-button long sleeve cardigan with two inset pockets on which there is a narrow self-trim giving the appearance of a vest.

Wool/Mohair Blend

Still another popular Puritan group, made up in a blend of 75 per cent wool and 25 per cent mohair, is heavily brushed and came in V styles only. A plaid all-over pattern was used combining dark oxford and java, black and blue, blue mist with white, dark oxford with white and also fall orange with gray. The brushing mingles the tones and gives the fabric a water-color appearance.

The muted coloring effect of brushing was also used in the Pauker Brothers' collection of V and crew neck, one-half and full zipper sweaters made up in a blend of 50 per cent lamb's wool, 25 per cent mohair and 25 per cent acrylic fibers. Bob Romanow said this firm's color scheme for fall emphasized mango (an orange), pango (a dark purple), cobalt, Verdi and tan, with white for accent.

(Continued on Page 25)

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These tones were used in all-over snowflake, chevron and herringbone designs, made on jacquard machines.

This firm is building a promotion around the Kingston Trio and a ten day trip to Jamaica and one of the five styles selected for this treatment is a V-neck pullover of 100 per cent Shetland wool which has two slash pockets set in cardigan fashion. A zipper placket is used and the collar and pocket trim are double strength. Color combinations for this are charcoal green and charcoal brown; mocha and green and also charcoal gray and blue with white as separation for all.

For two-tone, six button cardigans, in tan, blue, black or carmel, the deeper shade is used in a criss-cross cable in three-inch wide panels down either side of the front. This wide stripe design is also used for trim on a very deep V pullover made up in 75 per cent lamb's wool blended with 25 per cent Orlon acrylic. The trim on the right side of the V consisted of one and one-half inch bands of black and cadet blue and the

overlapping V on the left is black at the neck line and white at the overlapping segment.

One novelty featured by Pauker Brothers is an Orlon in pullover and cardigan styles. The color pattern is made up of three inch vertical panels of herringbone striping in orange, white and black; and also combinations of olive, gold, mocha, tan, thistle and willow with black and white. The cuffs are elasticized and there is a vent at each side of the hem which is fastened by toggles. The collar is a modified shawl sewed on.

A V-neck pullover and cardigan set in brushed Orlon was a center of interest in Sedgewick Sportswear. The V-neck was about three inches wide, on a white body, and was edged with about an inch of black and gold zig-zag stitching. This jacquard design was duplicated on the border and the edging of the two pockets of the cardigan. All the trim was doubled and done in a rickrack stitch contrasting sharply with the brushed body of the sweaters. Other color combinations for

this set were black with a white and gold trim; blue with a black and white trim; black and white on a gold body and also black and gold on olive.

Wide panels of chevron striping were also used in an all-over pattern on a square, ribbed neck pullover with long sleeves. This too was a brushed Orlon with muted combinations of green and white; tan and white; blue and white; black and rust and also black and green. Many of the Sedgewick pullovers with a deep V had a three inch applique of jacquard to further accent the collar style. These were offered in black and white with applique in black and white; olive and gold and also blue and black.

Sedgewick Sportswear also had a selection of V and crew neck sweaters in worsted in solid shades of stone blue, olive, white, black and orange with self designs worked in jacquard. One fabric was made up of 3 on 1 ribbing in panels one inch wide set off by eight inch wide panels on which the embossed stitching criss-crossed in dia-

mond patterns. Bands of ribbing two inches wide were used on the V.

Waist Length Placket On Fall Shirt By Izod

A waist-length placket is one of the features of Izod's fall line of men's knit shirts. The four-button placket is on a striped shirt in either gray, green or blue in 100 per cent wool with long sleeves.

The firm's line is subtle and luxurious. Retail prices range from \$8.95 to \$20. The placket model is about \$18.50.

Also in 100 per cent wool with long sleeves are a window-pane design number in brown, gray or green with a three-button placket and in in gray, green or blue with a heather stripe.

In synthetics, Izod offers a 73 per cent Arnel, 27 per cent nylon with a soft, chamois hand and an 80 per cent Orlon, 20 per cent wool. The Arnel-nylon is about \$15, the Orlon-wool has a suggested price tag of \$8.95.

All Izod shirts are simply styled with fashion collars.



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2. A fancy corylor stitch patterns this novelty with spread wing collar and neckline tie.
3. Definitely a sweater for evening is this three-quarter sleeve boatneck with double edge and bow detail.
4. Two small buttons narrow the V-placket of a collared slipon.
5. One button details the notched shawl collar of a marbled and shaded gray and beige pullover.
6. Tiny cap sleeves mark the end of a cropped slipon with striped boatneck yoke.

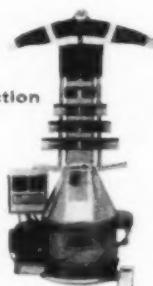
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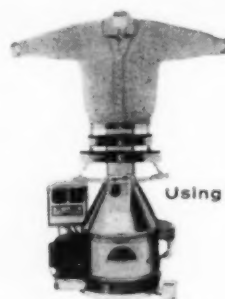
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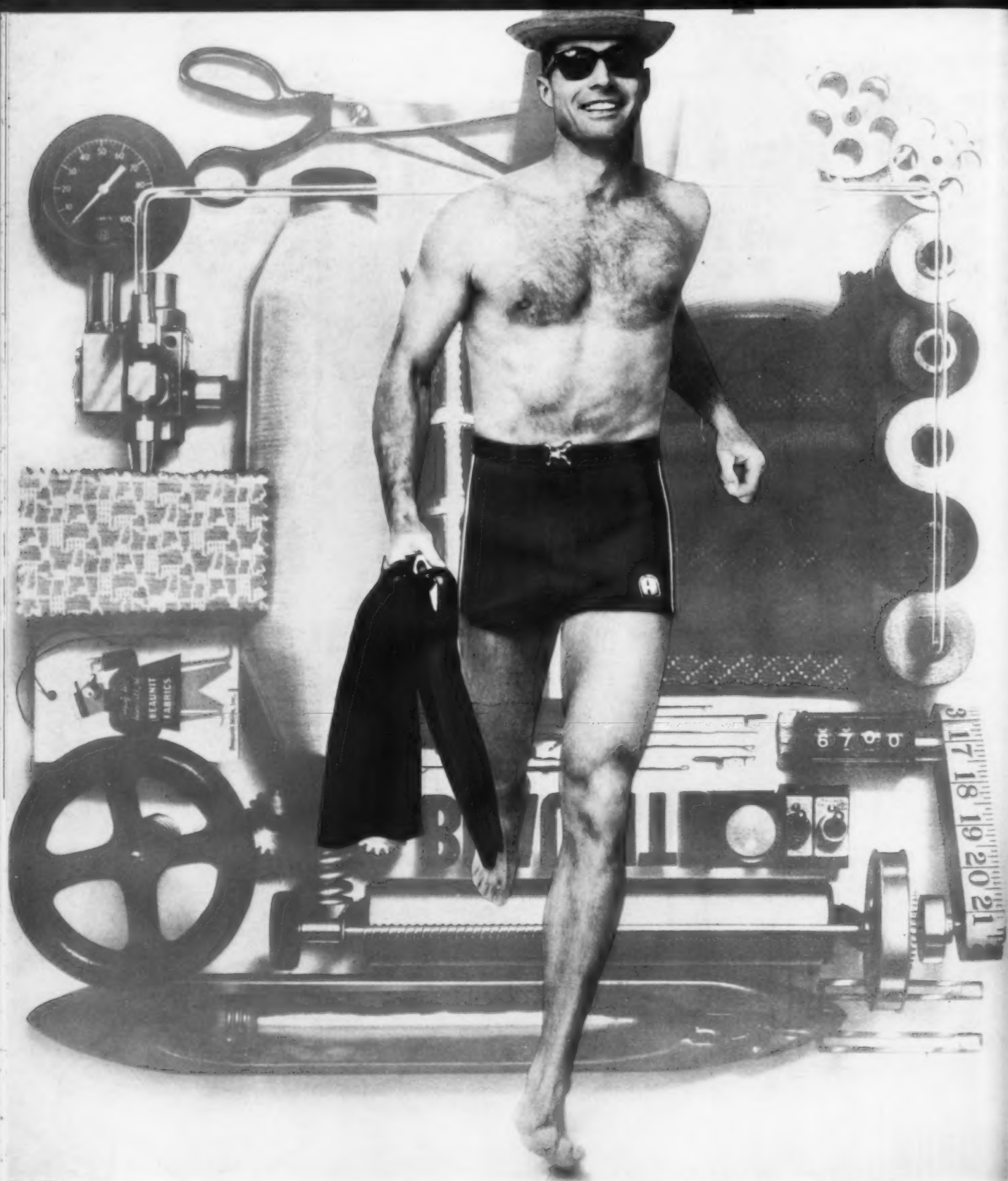
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Women's & Misses

Dalton Expands Beyond Cashmere

CLEVELAND, O.—Already established as one of the outstanding cashmere manufacturing houses in the nation, Dalton is moving ahead in a major program of coordinates in at least 23 colors for fall.

In the bustling plant at 6611 Euclid Avenue, which has been expanded since Dalton first moved in about 10 years ago, Arthur Dery, president, recently said, "Today we must be diversified both in fibers and styles. There no longer is room only for the specialist. Furthermore, we no longer can sit back and wait for the challenge from overseas; to see what the designers in other countries are doing. We must be able to see ahead, and plan accordingly."

The line, expanding from almost all-cashmere production, is now invading allied fields; all-wools, silks, cottons and others.

At a recent fashion show at Mt. Sinai Hospital, the fall line was displayed. Among the highlights were a three-piece petit point knit suit with cardigan jacket and slim skirt, a belted one-piece flat knit dress, a Chanel-type jacket with a pure organzine silk rib knit, a one-piece sleeveless dress and a warp-knit wool plaid suit with semi-box classic cardigan.



Chanel-type jacket with pure organzine silk rib knit one-piece sleeveless dress retails at \$110. Dalton.



Three-piece petit-point knit suit with cardigan jacket and slim skirt, left, retails at \$79.95, and a belted one-piece flat knit dress at \$55. Dalton.

Mr. Dery's love affair with the sweater has never ended. This fall he is featuring a new collection of cashmere sweaters and matching doeskin flannel skirts in new colors.

The knit dress and suit collections are being shown in topaz gold, teal heather, and aubergine purple.

Two years ago, when Dalton was over the \$16,000,000 mark in annual business, the company expanded its shipping facilities.

In 1935 Mr. Dery was with Federal Knitting Mills. He bet that he could pull Excelsior Knitting Mills Inc. out of financial distress. He won. The payoff was 50 per cent of the stock.

"We have come a long way since the T-shirt and the skirt with the belt were the high-points," he pointed out. "Today we must make our products fit the style of life reflecting the chic of American design."

He said many stores now do a volume turnover in the November-December period, and this reflects the entire trend of a knit line, particularly in coordinates.

Dalton's silk line has been in the planning stage for over two years. "Our first offerings were premature," Mr. Dery said. "But our fall offerings of 100 per cent pure organzine silk will be one of the most inspiring on the market."

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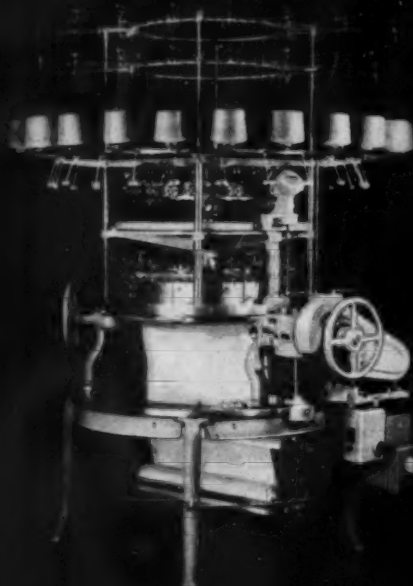
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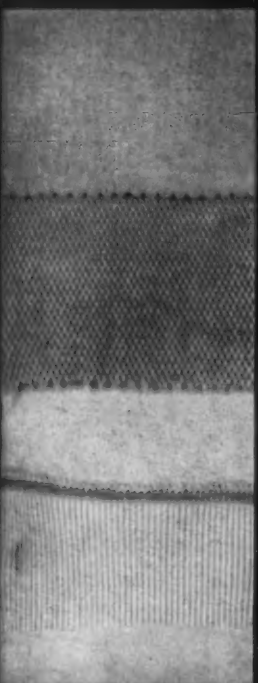
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'Women's & Misses'**Junior Accent Shows Pique Rib Knits**

A collection of wool double knits is encompassed within the fall line of Junior Accent, Inc. Fabric construction falls into two categories—pique and ottoman rib. Dress construction, style and unusual detail result in the relaxed silhouette which is characteristic of this firm. Necklines are widened, skirts have eased fullness in front and waistlines are often slightly below the natural waist.

These three features of the relaxed silhouette are found in a pique knit with buttons that reach from neckline to just below the dropped waist.

A classic sheath knitted in an ottoman rib stitch has a ringed leather belt that can be removed for a more relaxed look. Another ottoman rib sheath with slight skirt fullness, has the look of a jacketed dress in front, but is in actuality a one-piece dress. Breast pockets emanating from the arm seam form the sole detail.

Included within the line are

several highlighted two-piece dresses in both stitch constructions. Ottoman rib knits come in a collarless overblouse with back zipper and two large buttons sewn on a mock placket in front. The skirt is elasticized at the waist.

Ottoman rib is given a novelty appearance with the incorporation of two colors in the knitting process. The over color predominates while the second shade recedes into the background to create a subtle cast. Several numbers are representative of this idea. Among them are a two-piece dress with four large buttons in front of the overblouse and another two-piece with four covered buttons in back. Here sleeves are mid-length and again eased fullness marks the skirt.

A walking ensemble, also part of this two-tone theme, has an elongated jacket with mandarin collar and two pocket detail. The dress, a classic sheath with round neck, is sashed in suede.

Another costume is featured among this collection of double knits. It is of pique construction and includes a collarless three-button long sleeve jacket and

boatneck dress with tiny cap sleeves and the slightest suggestion of a lowered waistline.

Ottoman rib and pique double knit combine successfully on a dress. The dress body, which buttons in back, is in the pique stitch and ottoman rib trims the waist, neck and sleeves.

Always a favorite, the shirt-waist is part of the double knit grouping. Junior Accent does it in a sheath with front zipper, a pure silk ascot and leather belt.

One blouse look appears in double knit. It is a classically plain boatneck with long sleeves and zipper in back.

Orlon Sayelle Choice At Minnesota Show

MINNEAPOLIS, Minn. — The coordinated look and bright colors were important fashion trends at the May Fashion Week of the Northwest Salesmen's Association. Orlon Sayelle got the nod of buyers purchasing fall sweaters.

One exhibitor pointed out that merchants were not "just buying sweaters" any more and that sweaters were insignificant as separates. Buyers were coordi-

nating them with dyed to match skirts, both knits and wovens, and plaid skirts, slacks and other separates.

Martin Frank, Kaufman Knitting Co., Minneapolis, said that bulky slipover and novelty sweaters with detailed necklines retailing at from \$8.95 to \$19.95 had sold well. Figured sweaters in Scandinavian motifs also appealed to buyers. Generally, the high shades were featured rather than last year's muted colors. Three-piece wool knit dresses retailing at \$35 with a Jackie neckline also were interesting to merchants.

Myer Badiner, Myer M. Badiner Knitwear Co., Minneapolis, said that bulky sweaters in jacquard patterns, both wools and Ortons, retailing at from \$5.95 to \$10.95 had sold well. There also was some buying of swim suits for fill-ins, Badiner said.

Alvin Rutchick, Ed - Burt Corp., Minneapolis, said that he had done well with bulky knit sweaters in fashion shades dyed to match skirts and slacks and retailing at from \$8 to \$12.98. Flat knits, also dyed to match

(Continued on Page 35)

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the knit skirts, of 50 per cent wool and 50 per cent Orlon also were important numbers. The sweaters retail at from \$5.98 to \$7.98 and the skirts at \$8.98.

Significant colors in sweaters, Rutchick pointed out, were kelly green, rust, turquoise, orange, gold and black. Cotton knit tops and slacks for fall retailing at from \$3.98 to \$8.98 also moved well in the Ed-Burt showroom as well as two-piece cotton knit dresses at \$8.95 retail in all colors and patterns.

Herman Mogelson, Badiner Knitting Co., Minneapolis, said that Orlon bulkies in such shades as banana, fuschia and white appealed to buyers. Best sellers were the \$5.95 and \$6.95 retail numbers. Virgin wool cardigans in flat knits were bought by merchants from the smaller towns, Mogelson declared, in such shades as fuchsia, lilac and Baltic blue. The numbers retailing at \$5.95 and \$6.95 also moved best in these items.

Sherman Garon, Garon Knitting Mills, Duluth, Minn., said one of his best moving numbers was a matching ski sweater in

a Norwegian design. The sweater retails at \$8.95 and the matching cap at \$2.98. The set was bought in assorted colors, he said.

Erling Kallberg and Paul Ross, Aileen Knitwear, said that Orlon bulkies and Orlon Sayelle moved well in their showroom. Jacquards also were excellent, they added, pointing out that this may be a new trend. The fastest moving numbers retail at from \$5.95 to \$10.95. Flat knit sweaters in Italian types retailing at from \$10.95 to \$14.95 were another important number. Best selling sweater colors, the Aileen representatives said, were cherry, green and orange. Cotton knit pants coordinated with tops as a transitional item for fall in red, blue and camel also moved well.

Jerry Gilden Has Knits

PORTLAND, Ore.—The Jerry Gilden fall line includes knitted fabrics, according to Mr. Gilden, who appeared here for fashion shows of his late spring and summer collection at Best's Apparel in the Lloyd Center.

Ban-Lon Warp Knit In Crystal Line

Merely six ounces of fabric goes into each Bandolero knit dress in the David Crystal collection. A very successful segment of their summer line, these dresses offer beauty as well as practicality. Bandolero is a featherweight Ban-Lon warp knit fabric. It has a silky hand, packs compactly, sheds wrinkles and depending on the styling of the particular garment—is able to span every season of the year.

Bandolero dresses are svelte in navy or black, but in colorful prints they show to their best advantage. Since the fabric absorbs color so well, original prints in unusual color combinations characterize most numbers.

One of the prints offered is mosaic tile; multi-sized and multi-color diamonds placed somewhat abstractly on the dress fabric. A large diamond shape characterizes Harlequin which is offered in two-color combinations. There is also Pea-



Bright colors in an attractive arrangement make up the peacock design of a sheath with a stand up cowl neckline and self tie waist.

cock, a print suggesting, through design and color, the spread of a peacock's feathers; Daisy, a

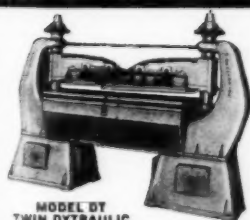
(Continued on Page 39)

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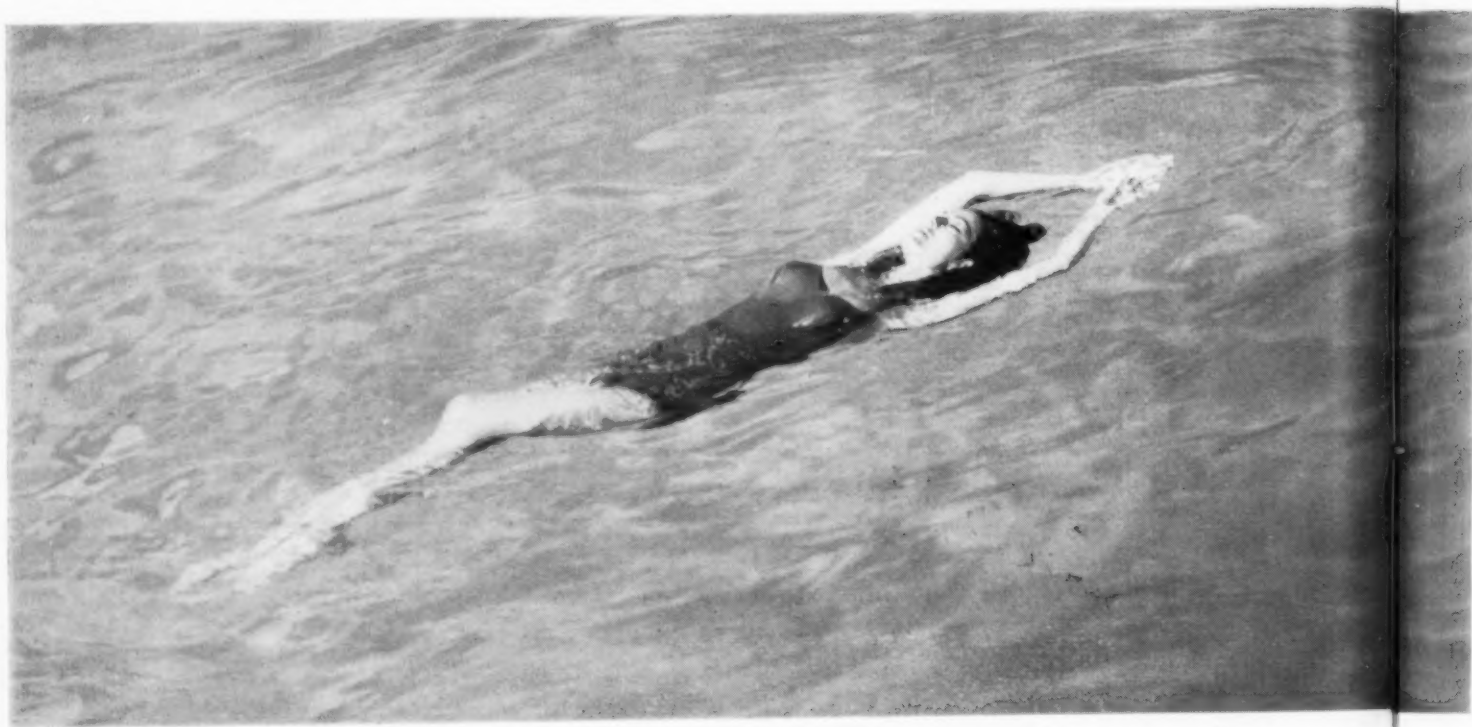
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Daisies
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pattern of black, white and a color utilizing squares to encase each flower, and Butterfly—a multi-color, swirling abstract expressionist print.

Dress styles include slim, loosely fitted, slightly flared and full skirts. Necklines are high and medium square, cuffed cowl, jewel and softly draped and plain boatneck. Sleeves range from cap and short to above and below the elbow. When a waistline is defined it is through a narrow or string belt. Within the collection is a classic shirtwaist with short sleeves.

Welt seaming, occasionally employed, forms the only detail on these numbers where fabric design is the highlighted characteristic.

Each style is offered in the aforementioned patterns in an ample variety of color choices.

Also part of the David Crystal summer line are Arnel jersey dresses. Four highlighted numbers are offered in white, mint, lilac, blue and gold. The various styles are a long-sleeved shirtwaist with full skirt and a jewel-neck, sleeveless dress with a minutely pleated bodice and full, pleated skirt. The same silhouette is offered with a plain bodice and the fourth style is a sleeveless, full skirted dress with seven-button bodice topped by a round collar. The waist is tied with a macaroni width self-fabric belt.



Daisies are encased within squares on a Bandolero sheath with three-quarter sleeves and a wide cowl collar.



Multi-color diamonds design the tile print Bandolero dress by David Crystal. This three-quarter sleeve dress has a boatneck.

Knitwear Sells Well At Buffalo Market

BUFFALO, N.Y.—Knitwear for back to school and the fall season sold well at the three-day market of the Empire State Juvenile Mart.

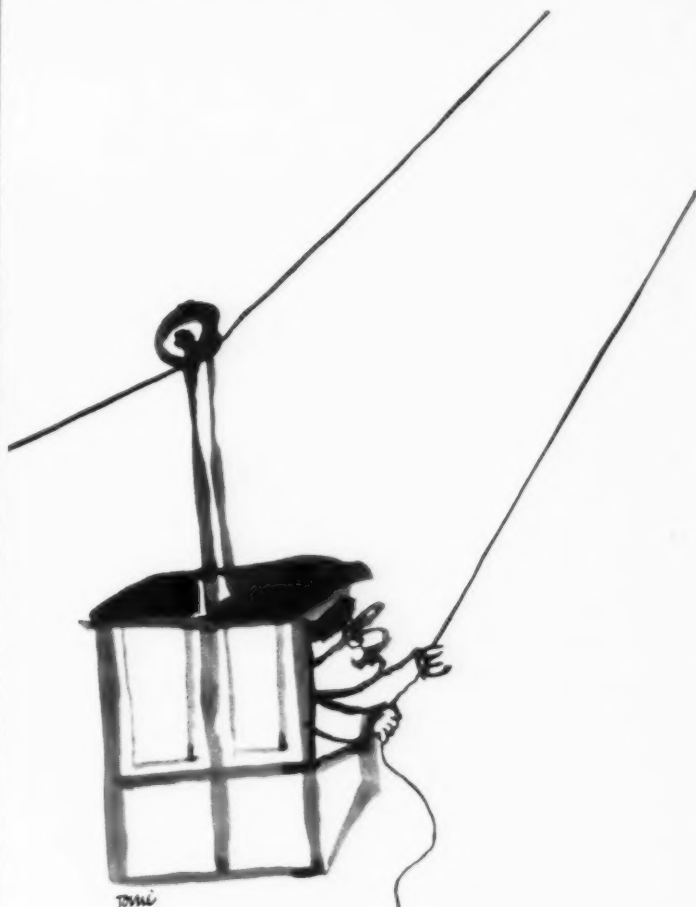
Irving Green, president of the association of salesmen, reported that back to school and fall buying were active but attendance was off slightly from last year's show.

Color was a style point. Retailers showed keen interest in bright shades and all indications point to one of the most colorful fall seasons in years.

Western New York infants' and children's wear retailers attending the show reported that their summer business has been retarded by cool and rainy weather during most of April and May. Sales of children's swimwear, summer knit sportswear and other seasonal items have been on the slow side, leaving current inventories above normal and reducing open to buy.

But merchants said they look for brisk summer business as soon as the weather warms and they are counting on good action in June and July to help offset early season losses.

Mr. Green announced that the Mart will hold its next Buffalo show in Hotel Lafayette September 24-26.



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Girls' Wear

White Stag Offers Sportswear Look For Girls Of All Ages

PORTLAND, Ore.—A small, but interesting group of swim suits for girls, pre-teens and juniors—styled with considerable flair and distinction—made its debut in the White Stag Manufacturing Company and West House girls' wear lines for summer. In these same lines, knitted tops make a bold advance in the direction of the long, relaxed fit which in recent seasons has been seeking a stronger entry into the American mass fashion consciousness. This is a reflection of the long, loose line that is important for cotton knit tops in White Stag's women's wear line for the coming summer.

A smart sportswear look characterizes styling in these lines, even for the younger girl, carrying forward the White Stag feeling for the increasing sophistication of taste in the girls' wear field. Fussiness and the cute look are notably absent.

As in past seasons, the key to the line is in its very complete range of fabric groupings, in which the knitted coordinates—primarily of cotton in the spring and summer line—form an integral part of a woven group.

For the cotton-knit tops, stripes—particularly horizontal ones—are numerous and important. There is also a generous selection of favorite necklines—shawl collars (crossed-over or buttoned), V-necks with collars, shaped boatnecks and scoops, and the more conventional Peter Pan collars, enlivened with narrow striping. The crew neckline,



Pant design is carried to the slipon in order to achieve a coordinated outfit.

too, has new shaping and is further renewed with narrow color striping to emphasize this delicately dipped, slightly V'd outline.

In the Trader Top, the solid-colored shawl collar dips into a cowl-like V-shape at the front, tidily finished with an edge of contrasting white, and topping a pullover in narrow vertical stripes. Short sleeves finish in a narrow, white-edged band in the solid shade, bringing back something of the look of a puffed sleeve. Bali blue, Malayan green, and papaya are the colors in this cotton-knit number in the South Pacific group for 7 to 14's and pre-teens.

Contrasts of print against plain deep—deep or vivid shades against white or light—are characteristic and provide the alert and fresh look that suggest a new season.

Also in the South Pacific group is the little sleeveless scoop-necked pullover which is done in vertical stripes with white knit binding and has something of a chemise look. This is of two-ply combed cotton in the blue, green or papaya combination. The Beachcomber top is of similar design, but executed in white cotton knit with colored knit binding.

Resembling it in its casual, relaxed line is the white, brief-sleeved Pearl Diver pullover in a textured cotton knit, with a shaped boatneck and simulated cardigan front with buttons.

Among the more unusual patterns is the Circus Stripe coordinate group, for the three girls' size ranges—from 3 to 6X up through the pre-teens. A Dan River Easy-Care woven fabric, with the stripes running vertically, is used for the shorts which are worn with a boatneck cotton knit shirt, almost but not quite sleeveless. However, for the shirt, the distinctive stripe, actually a lozenge pattern enclosed between dotted



Two-color stripes vary in width to create interesting patterning on this boatneck, cap sleeve slipon.

lines, is placed in a triple line across chest and shoulders against a solid white background. Colors for the stripe are Midway blue and parade red.

In the pre-teen styles, White Stag's well-liked cotton soufflé knit in the terry family is given a fine chalk-line widely spaced stripe. A decidedly bulky-topped look is given by short sleeves which extend out unbrokenly in a wide shoulder line, emphasized by the horizontal direction of the stripes. Vertical stripes for the coordinated shorts, also in the soufflé knit, are glimpsed below the long, loose overblouse line of this striking top. The two pieces are shown in two-tone color combinations of driftwood, sail red or aquamarine. The cotton soufflé knit was introduced in White Stag women's and girls' lines some seasons ago and has become virtually a permanent feature in the line.

Stripes of bold character, in many sizes and arrangements, characterize cotton-knit elements of White Stag's West House junior line. Like the girls' and pre-teens' separates, these knitted styles are designed as integral parts of the line's several fabric groups.

Accompanying the sailcloth coordinates are elongated boat-



Color contrast appears on the shawl collar, double-breasted bib and cuffs of a cotton knit slipon.

neck pullovers in horizontal stripings. One top features a very broad stripe running boldly across the shoulder and down the arm. The loose-fitting three-quarter sleeves carry the striped pattern horizontally across from the body of the shirt, giving an unbroken pattern of very wide stripes separated by narrower ones. Stripings include combinations of racing red and pennant pink, ocean sapphire and boat-swain blue, cannel green and sea moss.



Bold stripes design this V-neck blazer piped in the darker shade.



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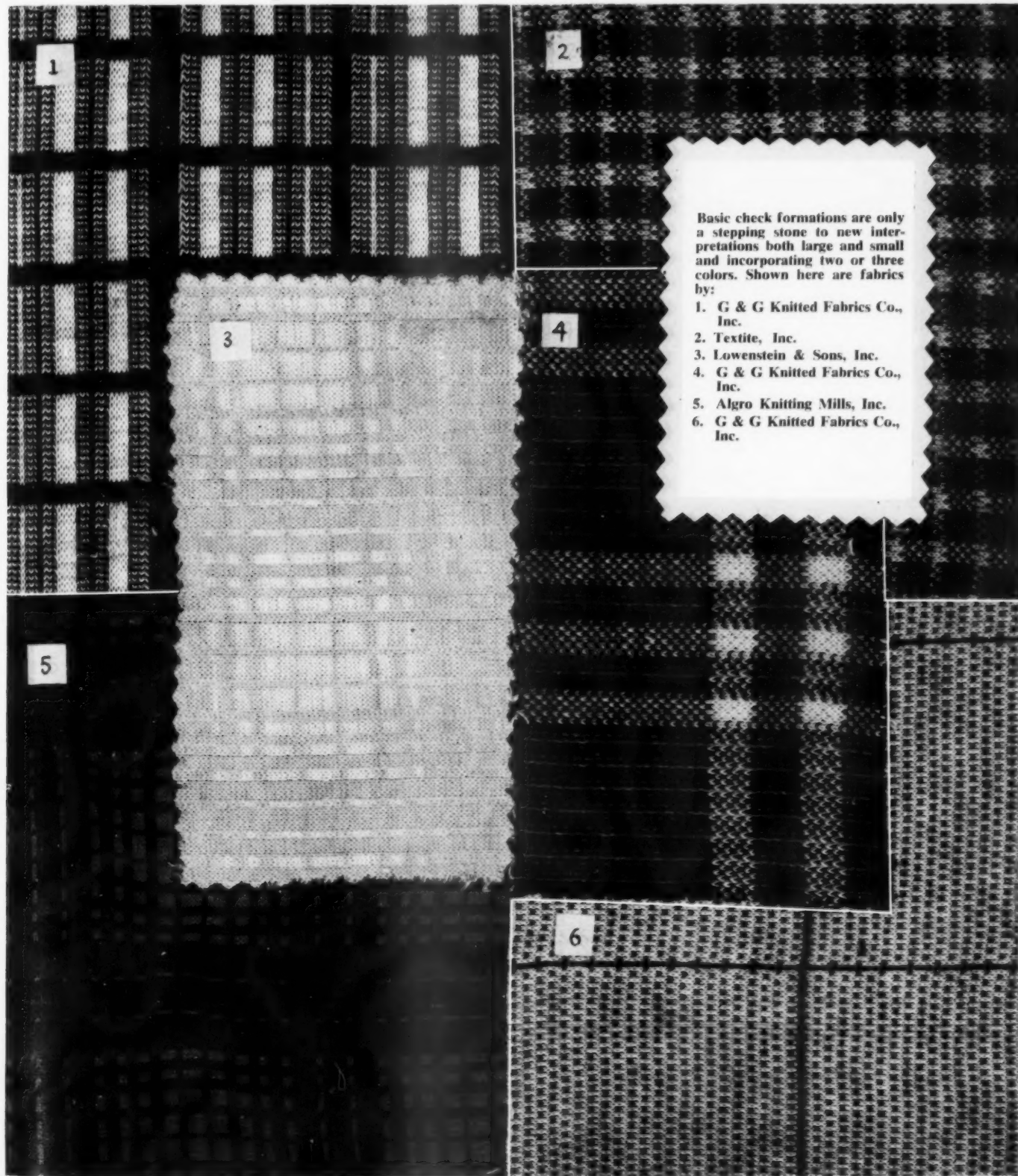
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Knitted Yardgoods

Bouquets Of Flowers On Edward Jerseys

Single needle wool jersey fabrics of the S. Edward Company owe their spark of individuality to the outstanding patterns screen printed on them. Edward Strauss, owner and designer, has defied all former boundaries of wool jersey designs that in the main kept decoration small, balanced and symmetrical.

Although many of Mr. Strauss' designs are formally balanced — as for example the tapestry patterns — most of them reflect a new approach to the decoration of jersey fabrics and the patterns have the requisite high style appearance that enable them to be made up into elegant after-five dresses.

"We are making fabrics for the woman who wants to be elegantly dressed for the theatre, cocktails or dinner, but who at the same time wants comfortable warmth on wintry evenings. Unfortunately, wool jersey has often been associated

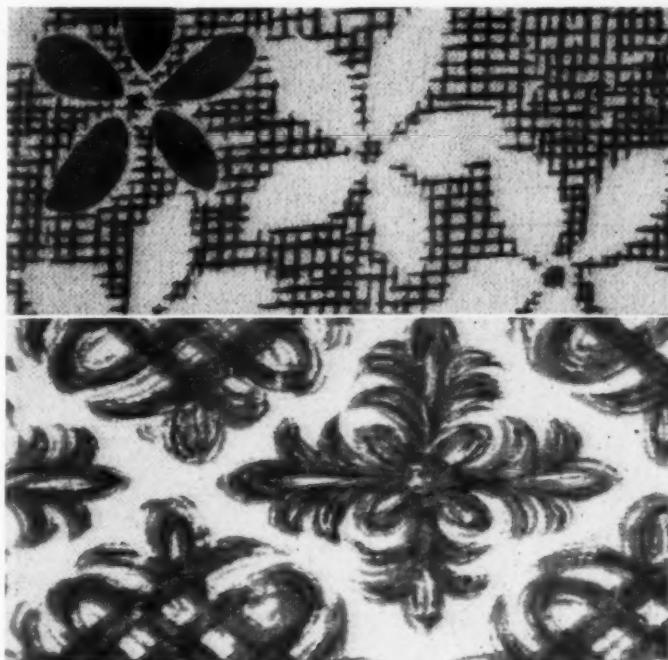
with more tailored clothing, but our exclusive prints plus the high styling of our designers take them out of that classification," said Mr. Strauss.

Unusual treatments of classic themes make up the design offerings. Richly blending colors combine in swirling paisleys. Some, for example, are shades of gold and fuchsia, blues and green, and deep pink with toned-down orange on a beige background.

Circles are given different treatments such as a large multi-colored and multi-sized collection of overlapping circles. A sample color offering here employs shades from gold through beige, tan and brown.

Another circle theme has large black polka dots with irregular edges placed randomly on the new hot colors including green, blue and pink.

"We feel large floral sprays will be especially popular for theatre dresses," commented Mr. Strauss while discussing his floral printed jerseys. These are offered in bouquet colors in many truly unusual treatments.



Solid color flowers placed upon an open lattice background have the appearance of embroidered applique in the above wool jersey fabric by S. Edwards. Below, a sample of the many tapestry-like jerseys.

Included are multi-colors as well as tone-on-tones. One two-color floral has an embroidered look with its solid flowers "superimposed" upon a

(Continued on Page 47)



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finely latticed background.

Tapestries

Tapestries have a true dimensional quality and come in many artistic forms in two colors as well as tone-on-tones. One two-color places nuances of aqua on black, olive on hot pink, and brown on golden tan in a rich, regimented design consisting of two alternating forms. A tone-on-tone tapestry has a jacquard quality and comes in two shades each of pink and green as well as black on blue.

Awning Stripes

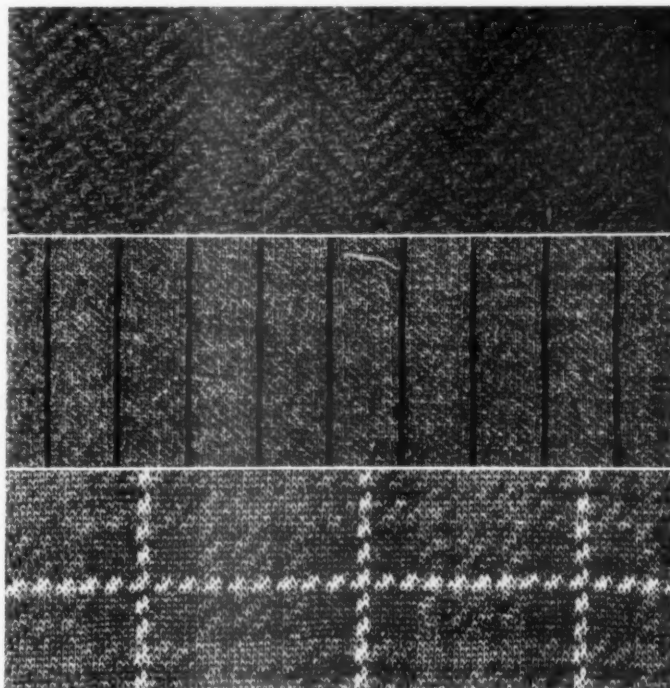
A bright finale to S. Edwards' jerseys is an almost shocking awning striped fabric. Bold, bright stripes ranging in width from about an inch and a quarter to two and a quarter inches are red, gray, orange, royal, green and chartreuse.

This fabric is presently offered in a blend of wool and rabbit hair but the firm is considering doing it in wool jersey also.

Gov't. Procurement

Military To Seek Bids On Women's Sweaters

PHILADELPHIA, Pa.—The Military Clothing and Textile



Three 100 per cent wool jersey fabrics by Stibbe & Co., Ltd. of Leicester, England, represented in the U. S. by Max Gross, Inc. are designed in a herringbone cloque; narrow, vertical stripes against a solid background and a three-color plaid. All of these are offered in many color choices.

Supply Agency plans to procure 2,856 women's blue wool sweaters, and 3,840 women's taupe

sweaters.

Delivery will be 120 to 180 days after the awards.

Trade Education

Knitter-Trainees Session To Be Held On June 17

PHILADELPHIA, Pa.—The Knitted Outerwear Manufacturers Association, Pennsylvania District, has scheduled its second all-day educational program for knitter trainees at the Philadelphia College of Textiles and Science on June 17.

The first such session was held on May 20th under Dr. Thomas Edman's direction, and was very successful, according to Dr. Edward B. Shils, executive secretary of PEKOMA. Representatives of the Association and of the workers' union were in attendance at the first session.

The second program will cover more advanced topics.

McGoldrick Appointed

PHILADELPHIA, Pa. — Clifton Yarn Mills, Inc., Clifton Heights, Pa., near here, has named Charles D. McGoldrick as superintendent of dyeing, to succeed Hector A. McCulloch, who died May 12. Mr. McGoldrick has been with the company 24 years and was assistant dyer to Mr. McCulloch since 1946.

Strictly

Stickley

*"Not of the sunlight, not of
the moonlight,
Not of the starlight! O young
Mariner,
Down to the haven, call your
companions,*

*Launch your vessel and crowd
your canvas,
And, ere it vanishes over the
margin.
After it, follow it, follow the
Gleam."
(Alfred, Lord Tennyson)*

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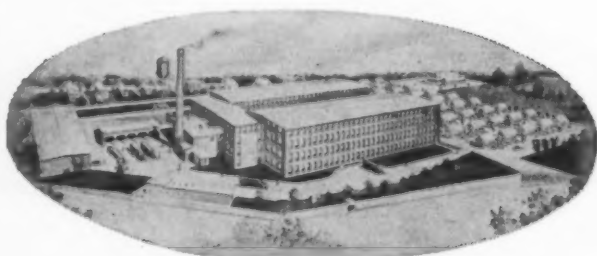
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Mill News

Girard Knitting Mills Being Liquidated

PHILADELPHIA, Pa.—Girard Knitting Mills, 48-year-old sweater manufacturing firm of Hatfield, Pa., is liquidating.

Paul Silver, head of the firm, declined to give reasons for the liquidation. He said he would remain in the trade, however, and that he was planning to form a yarn selling agency in Elkins Park, Pa. He is the sole principal in the Girard firm.

The firm was formed in 1913 by his father, the late Morris M. Silver. It has at various times produced men's women's and children's sweater, but most recently has been a producer of women's goods.

The Girard plant and equipment are up for sale. Included are all types of sewing and knitting machines and accessory equipment. There are 22 Leighton transfer machines, running from six to 10 cut and from 10¼ inch to 32 inch. Many of these are multi-feed and two- and three-color strippers.

Also, a number of Jacquard TA-4 6 cut 16 inch to 20 inch four feed two- and three-color strippers, all with motors and stop motions.

Miscellaneous machines include Leighton single needle brass ring rackers and 16 inch three needle rackers, eight flat machines of the Dubied and Universal type from seven to 12 cut, and five rib border machines of various dimensions.

Garan Knits Applies For Stock Registration

WASHINGTON, D.C.—Garan, Inc., New York City, formerly Myrna Knitwear, Inc., which manufactures and sells men's and boys' knitted sport shirts, has filed a registration statement with the Securities and Exchange Commission seeking registration of 120,000 shares of common stock, to be offered for public sale at \$6.50 per share.

Some 45,000 shares are to be offered to employees who have indicated interest in company affairs and to its Employees' Retirement Plan and Trust. The offering will be made on an all or none basis through underwriters headed by J. R. Willis-

ton & Beane, which will receive a 65 cents per share commission and \$12,500 for expenses.

About 65 per cent of all units produced by Garan are sold under the private labels of the company's customers, and the balance under the company's registered trademark, Garan.

The estimated \$675,710 net proceeds from the stock sale will be used to equip a new plant at Lambert, Miss. (\$150,000), and the balance will be added to working capital.

In addition to certain indebtedness, the company has outstanding 380,000 shares of common stock, of which Samuel Dorsky, president and board chairman, and Seymour Lichenstein, executive vice president, own 53.79 per cent and 26.28 per cent, respectively.

Samuel Katz To Head Beaunit Tricot Departme

Samuel Katz has been appointed head of the tricot department of Beaunit Mills, Inc. He will supervise sales of the acetate and nylon tricots and plastic coated fabrics.

A native of Boston, Mr. Katz was sales representative for the textile division in New England. Prior to joining Beaunit, he was New England sales representative for Fuller Fabrics and J. C. Siegelman.

Mr. Katz has been replaced as New England sales representative for the textile division by Samuel J. Sharff. Mr. Sharff will handle all fabrics, including circular knit, tricot and woven elasticized. His headquarters will be at 99 Chauncy Street, Boston.

Magic Hosiery Acquires Grand 'Mere Knitting Co.

MONTREAL, Que.—Magic Hosiery Company Limited has purchased Grand 'Mere Knitting Company Limited's machinery and plant and the associated firm Grand 'Mere Spinning Mills Limited.

Both mills at Grand 'Mere, Que., have been in voluntary liquidation under Canada's Winding-Up Act. Closing of the plants in mid-March left 350 persons jobless.

Jean-Louis Heon, president of Magic Hosiery, said spinning operations will be resumed immediately for the hosiery trade and that sweater production will start as soon as possible.



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Mill News

Wexler Mills Gains 5,000 Feet In Move

PHILADELPHIA, Pa. — Wexler Knitting Mills lost only two weeks of production in its expansion-move from downtown Philadelphia to Allegheny Industrial Center in the north of the city.

Besides that, "we have gained over 5,000 square feet and can take advantage of equipment that has been idled at the old plant," Arthur Wexler, vice president of the mill, said. The work space is now on one floor, with room for expansion, and working conditions for some 100 employees are improved, he added.

Founded in 1909 by the brothers Harry and Morris Wexler, the mill became incorporated in 1912. Morris Wexler, who is Arthur's father, still is president. He took office, after Harry's death last year. Solomon Wexler, son of Harry, is treasurer.

"Our family is growing," Arthur Wexler said. "My son-in-law, Jerome Heller; Sol's son-in-law, Matthew Snyderman, and a cousin of ours, Richard Wex-

ler, have joined us here at the mill starting at the bottom."

Wexler makes men's and boys' sweaters and supplies name-brand companies, jobbers and large chains in the Eastern, New England, Midwest and Western markets.

Arthur Wexler handles outside sales and Solomon Wexler devotes most of his time to administration and production.

The Wexlers give Aaron Maimen of David Maimen & Son, machine suppliers, a great deal of credit for the layout and proportioning of space at their new headquarters.

Born and reared in Philadelphia, both Arthur and Solomon Wexler graduated from the University of Pennsylvania — Arthur in pre-law and Solomon in business.

Honor Knitter For Aid To E. Europe Refugees

Peter Max Wagner, Rimax Knitting Mills, Brooklyn, was awarded the Cross of Honor and Merit by the Sovereign Order of Saint John of Jerusalem for his aid to refugees from East Europe. The ceremonies took place in the delegates' dining room at United Nations headquarters.

Yarn Suppliers

Pin-Drafters Boost Whittier's Capacity

ATLANTA, Ga. — Whittier Mills Company, yarn manufacturer, recently installed pin-drafters that increased its weekly spinning capacity by some 25,000 pounds.

The installation enables the mill to produce unusual blends of synthetics and wool and three different fiber blends. To balance the production, new twistors have been installed so that the additional output can be in plied as well as single yarn.

Whittier's capacity for certain two ply yarns has been doubled since the beginning of the year. The range of worsted is from 50's grade to 70's. Blends are made of Orlon and other synthetics with wool, mohair and wool and other fibers. The recent installation widens the mill's range of custom-made blends.

The firm has undertaken a long term expansion program. Plans are to have its multiple fiber blends ready for evaluation this fall.

Whittier has been in business since 1896. It began spinning worsted and synthetic yarns in 1937. After World War II, the plant was modernized. Demands for its custom-made yarns have necessitated continuous expansion.

A quality control system instituted after World War II, stands guard over every step of production.

Whittier maintains a close relationship with its customers, chiefly through its sales agent, Buckner-Howard & Co., New York City.

Defunct Finishing Plant

CENTRAL FALLS, R. I. — The Rich-Flex Mfg. Corp., producer of elastic yarns here, has purchased the main building of Sayles Finishing Plants, Inc., Saylesville, which has been shut down since January.

Meiman In New Offices

Meiman & Co., Inc., yarn sales agents, has moved its offices to Room 7904, Empire State Bldg., New York City. The firm represents Airedale Worsted Mills, Inc. and Meiman Mills, Inc.

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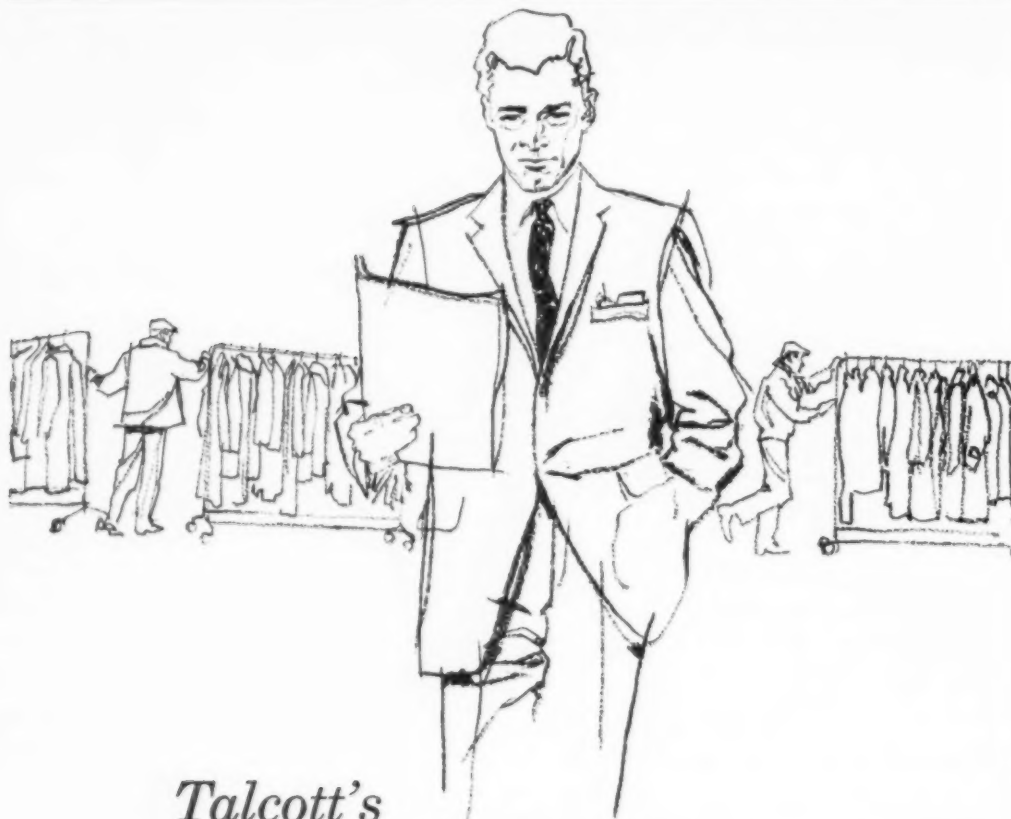
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Pattern Scope of Fouquet SMJ

(Continued from Page 9)

between the pattern colors. In this case, the stripes are formed by those feeds which knit the ground color by means of the eliminator butt levels c and d and in the remainder of the feeds, the eliminator butt levels a and b ensure that all cylinder needles are out of action.

Intarsia designs are formed in a similar manner when, for instance, the stripes of the color 1 are only formed in the repeat A and the stripes of the color 2 only in the repeats B. In this case the eliminator butt levels a and b cause all cylinder needles to be put out of action at those feeds which knit the ground color.

At the feeds which knit with color 1 the eliminator butt level c causes all cylinder needles to be brought back into action while the butt level d does the same at those feeds which knit with color 2. In this way continuous stripes are formed.

Since stripes are formed solely with the aid of the bluffing drums, it is possible to put the pattern drums out of action. This means that repeats can be knitted which are not divisible into the number of blade racks round the pattern drums.

An interesting new pattern development on this machine consists in the production of four-color designs with two different design figures. These new patterns are formed with the aid of the bluffing arrangements similar to the knitting of three-color designs, when knitting two two-color designs side by side. Two feeds working in pairs form one design. Feeds 1 and 2, 5 and 6, 9 and 10, 13 and 14, 17 and 18, 21 and 22 form, for instance, the first design in the repeats A, and the feeds in between, i.e., 3 and 4, etc., form the second design in the repeats B. The pattern drums of the feeds 1, 5, 9, 13, 17 and 21 select the ground color for the first design, and those at the neighboring feeds 2, 6, 10, 14, 18, 22, select the pattern color for the first design. The second design is set out in the pattern drums of the remaining feeds; that is, in the drums of feeds

(Continued on Next Page)

3, 7, 11, 15, 19, 23, the ground color is being selected, and in the drums of the feeds 4, 8, 12, 16, 20 and 24 the pattern color.

If the first design is knitted in the repeats A, repeats B are eliminated by the butts at level b, and conversely, when the second design is formed in the repeats B, the butts at level a cause the cylinder needles in the repeats A to remain idle. The pattern of both repeats can have the same ground color, provided all feeds in which a ground color is being knitted are supplied from packages having yarn of the same color. The total pattern then appears in three colors. If each pattern receives another ground color and pattern-color, the total pattern appears in four colors. If the pattern is developed progressively in such a way that the first pattern appears in repeats A and the second in repeats B, the ground colors in both repeats form vertical stripes. It is also possible to displace the patterns in the direction of knitting (vertically). By changing the action on the butt levels a and b, it is possible to form the first pattern in the repeats B and the second in the

repeats A. The ground colors of both designs are then displaced by one repeat and form a chess-board effect. There are so many bluffing possibilities that it is necessary to set them out notationally. If it is, for instance, required to bluff out only the pattern color of the first design from the repeat A, then the long and short bluffing levers are brought into action in the feeds concerned so that the long pattern levers (10b) act on the butts c at those feeds where the ground color for the first pattern is selected and the short bluffing levers (10a) act on the butts a at those feeds where the pattern color is selected. This is additional and results in the appearance of the ground color alone in repeat A, while here the pattern color is only knitted by the dial needles. If it is required to completely eliminate the pattern in the repeat A only the short bluffing levers (10a) acting on the butts a are brought into action at the two feeds which select the pattern, causing all cylinder needles to remain idle as far as repeat A is concerned.

Equipment News

Singer Will Handle Label Sealing Units

Singer industrial sales offices will now sell and service electronic label sealing equipment manufactured by Progressive Electronics Co., Inc., Passaic, N. J., it was announced by John W. Cull, vice president, Singer Sewing Machine Company. Distribution rights in the U. S. and Canada will be exclusive.

In the line of heat sealers and electronic welders are two electronic machines—Models HFH and HFA—for labels or hanger tags in the most frequently used sizes. With Model HFH, labels are fed manually; with Model HFA, labels are fed automatically from a magazine.

The machines permanently affix labels, coated with a polymer adhesive, or emblems and monograms, using an adhesive film, to knitwear and sportswear.

High frequency radio waves soften the adhesive in a fraction of the time required by direct heat. Most labels are attached in $\frac{1}{4}$ to $\frac{3}{8}$ ths of a second. Because the adhesive is softened electronically before the fabric be-

comes warm, even sensitive materials like low fusing point synthetics may be labelled safely, the company reported.

The operation is simple. With the manually fed Model HFH, the operator has only to position a label on the garments, then depress a foot switch which starts the automatic cycle: the bar electrode moves down to compress the label against the heated platen, permanently affixing the label to the garment. With the magazine fed Model HFA, the label is automatically positioned on the electrode immediately before the cycle. With both units, the operator's hands are free at all times to position work.

Though rejects are almost entirely eliminated with this method, the machines may be used to remove previously welded labels.

Laconia Needle Breaks Ground For New Plant

UNION CITY, N. J.—Laconia Needle Manufacturing Co., Inc., broke ground on May 31 for a new plant location at O'Shea Industrial Park, Laconia, N. H., it was announced here.

The ultra-modern construction is scheduled for completion in November, 1961.



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Quality Control

Yarn Inspector Is Fully Transistorized

WESTFIELD, Mass. — The Series 1000 fully transistorized electronic ultra yarn inspector has been introduced by Lindly & Company, Inc., Mineola, L. I., through Foster Machine Company, here. It is primarily for automatic inspection of synthetic yarn warps.

The basic components are a highly sensitive solidly mounted photoelectric detecting head over which the yarn is run and a compact and completely transistorized electronic control unit that can be mounted remotely or attached to a leg of the floor stand, on which the head is mounted.

The inspector may be wired to the warper controls to operate only when the warper is running, thereby eliminating the false count that could occur when the yarn is repaired.

Defects in the yarn, like broken filaments, strip backs and fluff balls, are detected when they interrupt a light beam. Detection can be made to operate a counter, a signalling device, or to actuate a machine stop switch—singly or in combination for any degree of imperfection.

A prototype of the inspector has been running continuously in the Lindly laboratory for more than 22,000 hours, over two and one-half years, without a component failure, the company reported.

Hydraulic Die Cutting Of Tubular Sweater - Strips

(Continued from Page 3)

in the sweater-strips to simplify joining during sewing. The notches can be cut into the garment or left on the outer edge. Most sweater manufacturers prefer an outside notch because it is easier for the sewing operator to see it than an inside slit. The fact that the notch is on the outer edge of the sweater-body does not produce an additional cutting problem since it can be merrowed out. Sewing notches can be of any width desired. Usually a relatively wider notch is stamped out on a rib bulky sweater length than on a Ban-Lon sweater-strip.

For maximum utilization of a hydraulic die press in his cut-

ting room, a manufacturer would, of course, require sets of dies for each size garment in his line as well as for each style. It is possible, however, to reduce the investment in dies by combining them, such as having one type of die for a classic pullover but different, smaller dies for the various types of pullover necklines.

Production rates with die cutter naturally vary with different mills. A plant which has two workers to a hydraulic die cutter—the operator and an assistant to lay-up the cloth on clicking boards—obviously would have a higher output rate than a mill which assigns only one worker to the operation. Large mills reportedly have turned out over 400 dozen garments a day on the clickers. Output, of course, would be lower in smaller mills though the basic rate need not be different.

BOOK SHELF

DESIGNING APPAREL THROUGH THE FLAT PATTERN. By Ernestine Kopp, Vittorina Rolfo, Beatrice Zelin. Published by Fairchild Publications, Inc., 325 pages, \$10.

A scientific approach to the whole field of apparel design is undertaken by Ernestine Kopp, professor of apparel and Vittorina Rolfo and Beatrice Zelin, associate professors of apparel design, in this book. The authors have collated the methods and procedures used in preparing students to use the flat pattern to develop original ideas effectively and efficiently.

The text is so arranged that any designer or production man will be able to apply the methods quickly and easily to his own slopers, the short-cut devices that facilitate rapid development of patterns. There are three major sections for the basic slopers—the waist, the sleeve and the skirt, with variations. Miniature slopers, one-quarter scale, and a number of diagrams have been provided for practice and experimentation.

The book is designed for the student, teacher, designer and patternmaker.

Packaging Feature

Packagers Show Their Sealers, Strappers And Labellers

By ALAN SIEGLER

NEW packaging equipment and materials were exhibited at the recent Knitting Arts Exhibit in Atlantic City, N. J. Despite continuing controversy over the relative merits of plastics and boxes, manufacturers agreed generally that the customer is seeking special packaging for special needs and that the packaging industry is still growing after a decade of expansion.

American Viscose Corporation exhibited its new Avistrapper automatic strapping machine for use with Avistrap cord strapping. A new line of hand tools and the new Avistrap mechanized pneumatic tensioners were also shown.

Avistrap is a high-strength rayon packaging material introduced less than a year ago by the company. New dispensers and two new heavy duty rayon straps were introduced.

American Viscose has developed two new strapping machines: Model AVM-1 for smaller strapping applications and Model AVM-2, which automatically straps packages in a range from 15 x 15 inches to 36 x 36 without machine adjustment in any length and in any width of strapping from one-quarter to three-quarters of an inch. The overall height of AVM-2 is 76 inches and the length including the dispenser is 97 inches. The machine weighs about 900 pounds.

AVM-2 and AVM-1 are powered by one-half horse-power, 1200 rpm, 115 volt, 60 cycle, single-phase electric motors. The dispenser units of each machine are powered by similar electric motors of 1700 rpm.

Carbert Manufacturing Co. exhibited the six-year-old poly-bag sealer model 1010. The machine consists of an integrated conveyor system to feed loaded bags into an automatic hot wire sealing and trimming unit. It is a continuous motion unit capable of sealing 1200 linear inches per minute. It is adjustable for bags of sizes and thicknesses up to four inches and will seal bags to within 1/32 of an inch of the contents. For safety there is an immediate shut-off to prevent any material other than the edges of the polyethylene bags from entering the infeed of the seal and trim station.

Model 1010 is available as a standard bag sealer for 4,500 dollars. Attachments include:

- an automatic label applicator to place pressure-sensitive or heat-sensitive labels any place in the bag.

- an automatic coder and imprinter for either code marking sealed bags or for imprinting labels prior to placing them on finished bags.

Carbert also displayed a newly developed machine for loading plastic bags automatically. It makes it possible to eliminate one and, in many cases, two, operators from the film bag packaging line.

The standard model M-40, which sells for 5,500 dollars as a separate unit, or 9,975 dollars in combination with the bag sealer work is used in conjunction with the sealer to become a single machine for complete automatic film bagging operations.

American Engineering and Design Corporation showed a device to automatically heat seal more than 2,000 loaded polyethylene bags an hour. The Seal-A-Bag Automatic is priced starting at 1295 dollars.

It seals bags from one to 14 inches wide and up to 18 inches long, producing a fine beaded seal which is adjustable in strength. Scrap material is trimmed and blown away as the bag is sealed.

It can be fed directly from semi-automatic bagging machines from an external conveyor or by hand-leading operations. Personnel can make sample bags or bag occasional odd-shaped packages while seated.

The machine is three feet high and is fitted with handles for carrying. It plugs into a standard 115 volt grounded electrical outlet and consumes more than 250 watts while performing at top speed.

A new compact version of the Amscomatic packaging method was introduced by Amsco Packaging Machinery, Inc. The new '75' series has an eight-foot infeed conveyor that handles the output of a single bag loading machine. With a ten-foot conveyor it seals the output of two bag loaders. The speed of operation is 900 linear inches per minute.

The machine is available in two models. The 75-FA, with a wide bottom infeed conveyor belt riding at an angle off horizontal and having a three inch guide belt, is recommended for soft goods such as T-shirts. For stiffer goods, the 75-H is recommended.

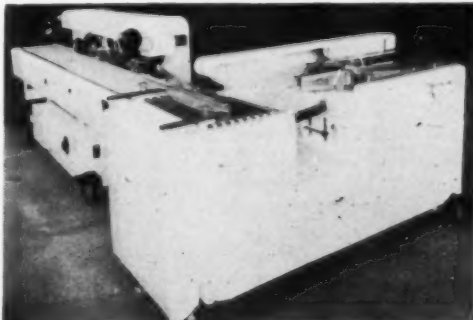
Amsco also introduced its Amscomatic 300 Label applicator on a mobile stand. This equipment is designed to place automatically a pressure-sensitive ticket or label on a package traveling along virtually any conveyORIZED packaging or delivery line. Operating independently or in conjunction with packaging machinery, it may be automatically integrated with an imprinting or marking machine,

thus combining imprinting and application of labels in one step.

Several other Amscomatic packaging method installations included an Amscomatic 100 for variety textiles; an installation for baling of multiple packed items with automatic application of inventory and stock ticket to the end of each bag; a PJJ bag label sealing machine for sealing poly and other film bags while simultaneously applying a saddle label over the bag top, and a Model PJ bag sealing machine for sealing "K" cellophane bags and automatically punching a hole for rack packaging.

Leesona Corporation displayed a new ring twisting machine, number 512, with a 12 inch traverse and a high-speed traverse motion. The new builder motion provides free delivery to the next operation. Ring rail construction has been engineered for smooth traverse motion at high speeds up to 5 rpm of the builder motion cam, the company said. A new spindle and swing combination allows high spindle speeds with the large 12 inch traverse bobbin.

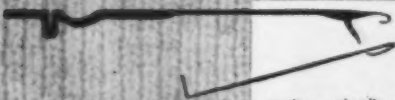
A completely shielded electronic labelling unit was introduced by Thermatron, electronics division of Willcox & Gibbs. It is internally shielded to conform to FCC requirements without the need for a screen room. The shielding features allows for mobility. Interchangeable and adjustable label feed hoppers make possible easy and rapid conversion to various size labels. The item to be labeled is jig positioned by the operator.



Left, the Speedy bag packager and auto-bag sealer combination, manufactured by Errich International Corporation, is activated by the unsealed bag as it is dropped into the chamber. The sealed product is released by gravity through a door at the rear of the machine. Right, Carbert Manufacturing Co. bag loader and sealer.

**a word to the wise
is sufficient...**

Knitted Outerwear Times



the official publication of the
national knitted outerwear association
386 park avenue south, new york 16, new york
murray hill 3-7520

sweaters • swim suits • infantwear • knit fabrics • polo shirts • gloves • headwear

Published weekly (except for a special issue in April) in New York, N. Y. Subscription price \$10 per year. Entered as Second Class Matter June 27, 1947, at the Post Office at New York, N. Y., under the Act of March 3, 1879. Copyright 1961 by the National Knitted Outerwear Association.

Stores Urged To Extend Season

Retailers should hold off clearances of women's swimwear at least until August 1, the ready-to-wear group of the National Retail Merchants Association suggests.

Charles Himeloch, vice president of Himeloch's, Detroit, chairman of the group, said, "The National Knitted Outerwear Association has been urging retailers to hold off the season—in the fall, in the winter, and in the spring—because it is difficult to get rid of some of the merchandise that not only does not make a profit but also does not want to be sold." He called upon the stores to take action: "Only the retailers in a community can do it. National action won't do it."

"It's our feeling that clearances shouldn't be until August 1st, but there may be local situations which counsel even later timing. But at least these should be intelligently scheduled and, of course, observed," Mr. Himeloch added. "From the customer's point of view, let no one say that for once she'd be able to buy the size and color and style she wants when she wants it—she buys closer to her need, remember—then has generally been the case in the past."

Knitwear Firms To Meet Feb. 15 In Charlotte, N. C.

Members of the National Knitted Outerwear Association in the South will meet 4 P.M. Wednesday, February 15 at the

Harringer Hotel, Charlotte, N. C. It was announced by Sidney S. Korzenik, executive director and counsel.

It will be an informal session and devoted to a discussion of the views and needs of the local members and recent activities of the Association. NKOA president James F. Nields will attend.

In the evening, at a dinner sponsored by the NKOA, the Piedmont Chapter, American Association of Textile Technologists, Charles Reichman, editor of KNITTED OUTERWEAR, will speak on recent developments in circular knit goods.

Retailers See 1961 Sales Same as Higher Than '59

Two years of businessmen surveyed by the National Retail Merchants Association in the sales forecast for this year will be even with or better than last year's.

J. Gordon Dakins, NRMA executive vice president and treasurer, disclosed that 30 percent of the respondents feel sales will be ahead, 36 percent feel they will be even and the balance, 34 percent, feel they will fall below last year's.

Thirty-four percent of the respondents believe sportswear will gain the most in 1961. Twenty percent listed junior apparel, 17 percent dresses, 11 percent men's wear and seven percent coats and suits.

Sweater Shipments Down

WASHINGTON, D. C.—Average weekly shipments of men's sweaters in December, 1960, amounted to 25,000 dozen, down 40 percent from shipments in the comparable period in 1959, the Bureau of Census reported.

Korzenik Presents Import Analysis To Pastore Committee Hearings

WASHINGTON, D. C.—The mounting threat of foreign imports in the textile and apparel field was the chief subject of presentations made by various affected industries at the hearing of the Pastore Committee when it reconvened on Monday and Tuesday, February 6 and 7 for a further consideration of the problems of this area of the industry.

Sidney S. Korzenik, executive director and counsel of the National Knitted Outerwear Association, presented the committee with an analysis of the impact of foreign-made knit goods on the domestic market. He also presented a general statement in behalf of the apparel industries, asking the committee as a part of its concern for the textile industry to include a study of the problems of the apparel manufacturing which constitutes the chief consumption of domestic textiles.

The Pastore Committee is a sub-committee of the Senate Committee on Interstate and Foreign Commerce. It was originally constituted in 1958 to make a study of the troubles in the textile industry. In the report it published as a result of its first hearings it stressed the dangers of foreign imports, took a sympathetic attitude toward the possibility of quantitative restrictions, recommended the establishment of an inter-agency committee on textiles and arranged for certain special research studies to be prosecuted on this subject. The inter-agency committee was later established in consequence of the first Pastore report reached the conclusions that were opposed to any action with respect to foreign competition outside of the avenues of relief, limited as they are, provided under the Reciprocity Trade Agreement Act. The inter-agency committee report was found highly disappointing in the textile industry.

The reconvening of the Pastore Committee is intended, therefore, to bring its study on the textile industry up to date with view toward possibly making new recommendations.

Textile and apparel interests as well as labor unions presented their viewpoints to the committee which Senator Pastore, Democrat of Rhode Island, heads. Attention was primarily focused on the injury suffered as a result of foreign imports, particularly from Japan.

"Increasing imports of knitted outerwear have come to occupy a substantial part of the domestic market and have been hurtful to the knitted outerwear industry and to related segments of the economy," Mr. Korzenik said.

"As the knitted outerwear case shows, the competitive advantage rests with the countries where substandard wage rates prevail, notably Japan.

"In consequence of this advantage, low-priced imports from low-wage countries proved detrimental not only to the United States industry, but have displaced other Western allies from their position in the American market.

"Export quotas announced by Japan have been illusory, misleading and unless bilaterally negotiated and agreed

(Continued on Page 37)

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Knitted Outerwear Times

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Packaging Feature

Jantzen Pictorial Packages Based On Selective Selling

By VIRGINIA CORNING

PORTLAND, Ore.—A self-service philosophy concerning retail selling is cited by Jantzen Inc. as an important part of the thinking that has produced a group of striking pictorial packages for the company's free style racing suit and for various accessories—swim bras, French cups, sports briefs, Accents, etc. It is packaging which not only makes it temptingly easy for the customer to find and purchase the product, but also emphasizes its famous brand name by a program of related design, maintained throughout the entire group of products. At the same time, the packages dispense glamor in no uncertain terms by sophisticated use of photographic illustrations applied in "bleed" or "wrap-around" fashion on the front panels of the entire family of attractively-proportioned rectangular boxes—which already have won two awards from the Folding Paper Box Association.

On a somewhat lesser scale, the same concept has been applied to the men's line.

Self-Service

The self-service element in the planning is emphasized in recent statements by Dick Andrews, manager of Jantzen's advertising department, who pointed to the problems of department stores and other large retail outlets in competing with semi-self service stores.

"We knew that the merchant-patron relationship, as it existed in the past, was disappearing.

"Department stores and specialty shops cannot compete in the labor market today for the right kind of people to serve the public. The retail customer, because of the self-service training experienced in grocery stores and high-volume discount operations, has become a self-trained shopper.

"The retailer has, in many instances, reluctantly complied with this desire. In stores where there has been a complete break-over into self-service, manufacturers have been faced with the responsibility of creating new and better display techniques for their merchandise."

Conversion Planned

Jantzen has observed and anticipated this trend as it has gathered strength during recent years. After extensive surveys, planning was directed toward a

gradual conversion from service to self-service selling.

"As manufacturers, we were aware of and vitally concerned with this transition stage. It became apparent to us that we would have to evolve merchandising techniques which would be adaptable to the growing trend," Mr. Andrews said.

Realizing that retailing was entering an era in which soft goods will be displayed and sold in much the same way as grocery products, Jantzen some years ago set out on a packaging program which would favor the development of semi-self-service sales. After some rewarding excursions into related packaging and some successful sorties into "romancing" the merchandising of a product via its package, Jantzen last year placed Mr. Andrews in direct charge of a concentrated program to take full advantage of today's growing interest in the package as an important merchandising factor.

Container Corp. Is Maker

Packages in this new group of pictorial cartons are manufactured by Container Corporation and were designed by Douglas Lynch, Portland commercial artist and designer, who is Jantzen's art director. The front panel for each product has a different photo, lithographed invitingly in soft art shades emphasizing turquoise and the pink and lilac range for the women's packages.

In the men's line, turquoise is used; but in combination with orange, shading into gold, peach and green tones. Composite views in photo-montage arrangement portray varied sports activities. These are on packages for supporters and supporter briefs. The "Free Style Racing Suit" package uses a swim scene in turquoise on the front panel.

Women's packages feature an underwater swim scene in turquoise, for the racing suit package and, for the other items, photos in soft, misty focus show-



Jantzen illustrates its package with an action shot that emphasizes the use the consumer will get out of the swim suit.

ing the product being glamorously modeled.

Rear panels of all packages carry price data and extensive descriptive matter, handled with a merchandising approach.

A small tab at the top of the front panel of these cartons gives a flip-top action which holds them neatly closed or permits an easy, dexterous opening.

Headwear Mills Show Interest In Packaging

By BENN OLLMAN

MILWAUKEE, Wis. — The growth of self-service merchandising is stimulating an interest in new packaging techniques among knitted headwear producers here. Mill spokesmen admit that the knitted headwear industry can lay claim to very few innovations in packaging in recent years. But this situation may soon see some changes.

Traditionally, knitters here have soft pedaled packaging developments. The lack of interest, they claim, is due to the fact that their output is primarily moved through jobber channels.

Imprinted polyethylene bags featuring flip tops are a recent development.

"There is bound to be a need for improved packaging in the knitted headwear field in the period ahead," Herbert Pola-

check, Reliable Knitting Works, said. "We can see it coming. Competition in the self-service apparel departments all over the country grows keener all the time. In self-service merchandising so much depends on the impression packaging makes on shoppers."

Allen Everitt, Allen D. Everitt Knitting Co., also noted a belief that traditional packaging techniques, or lack of them, in the knitted headwear field are due for updating.

"The old reliable clerk in the retail store is seldom around nowadays to explain a product to the consumer," Mr. Everitt asserted. "The package has to do a selling job today as self-service takes over."

Eagle Knitting Mills, according to G. W. Rogers, has devoted considerable effort over the years to development of boxes for shipping their knitted infant sets. A high quality box, says Rogers, is very important, and makes a fine impression on jobber accounts. But it is not necessarily effective as a consumer package.

Both Reliable Knitting Works, Milwaukee, and the Schuessler Knitting Mills, Chicago, have recently introduced new counter boxes for use as merchandising aids. These boxes are intended to spotlight groupings, however, rather than individual items in their knit headwear lines.

Plant executives also note keener interest in string tags, labels and illustrative material. This interest, they add, however, is more of a labeling than a merchandising factor.

Textile Machine Works Acquires Packaging Firm

PHILADELPHIA, Pa. — Textile Machine Works, Reading, makers of hosiery machines and other textile equipment, has acquired the capital stock of J. L. Ferguson Co., Joliet, Ill., manufacturers of case loaders, sealers and other packaging equipment.

This is Textile's first proprietary participation in packaging equipment, although they have manufactured it under contract.

Packaging Feature

Designer Wants Package To Vary With Quality Of Contents

By TOM PAUL

Vice President and Marketing Director, Mel Richman Inc.

THE smart knitted outerwear merchandiser asks himself: "What can I do in my packaging to make my product stand out from the run-of-the-mill?" Mel Richman Design Associates asks this of manufacturers who should be interested in packaging as an important part of advertising, sales promotion and marketing.

We have found, in our continuing studies of packaging in the knit goods field, that manufacturers package sweaters and knit shirts almost the same way. In recent years, the trend has run toward polyethylene bags so that the product can be in full view either on the shelf or in the counter. The idea is to give the consumer a bag for storage at the same time.

This is fine, but manufacturers tend to package their low-end goods, their medium-price merchandise and their high-style cashmeres all in one kind of bag.

This makes all grades of sweaters and knitted sport shirts look alike on the shelf. That is not what manufacturers or retailers want. The retailers, however, have no choice.

Our designers feel that manufacturers of higher priced sweaters and knit shirts could set their goods apart from lower priced merchandise with a special trademark, a special design, or different colors to immediately convey quality. More tasteful graphics are very impressive.

Another possibility is to print high-style inserts, for the polyethylene bag. The bag becomes a bonus for the consumer, a storage bag without imprinting.

Another way of using the polyethylene bag without imprint is to put it in a clear acetate firm box to give it dimension and set the product aside as outstanding.

A set-up cardboard box with distinctive imprint could be sub-

stituted for the acetate box in the higher-priced goods again to distinguish quality from run-of-the-mill.

Though swim suits are not pre-packaged attractively, since they must be tried on, a manufacturer can provide retailers with attractive carry-away boxes. Polyethylene bags can also be furnished for storage purposes. This could be very useful for wool suits, which require protection.

A special gift box was also suggested for swim suits for the retailer.

Your package should show the quality of your merchandise. If all price lines are packaged the same way, a vital sales point is lost.

U.S. Industrial Chemicals Issues Polyethylene Resin

CHICAGO, Ill. — A high-strength polyethylene resin of Petrothene 232 that provides clarity for cast film was intro-


duced by U. S. Industrial Chemicals Co., at the 30th annual AMA Packaging Exposition. The film made from the resin was converted into bags at the exhibit.

Field Tests


Field evaluations conducted by U.S.I.'s polymer service laboratories indicate that blown film extruded from Petrothene 232 exhibits excellent appearance and high strength.

Among the film's processing properties are said to be good heat-seal characteristics and take-off rates, and handling ease on bagmaking and packaging equipment. Electronic treating of the film for optimum printability has been accomplished at commercial take-off rates without difficulty, the company declared. Vincent D. McCarthy, director of plastics sales of the firm, said American-produced conventional polyethylene will be serving a 16 billion pound market by 1965.

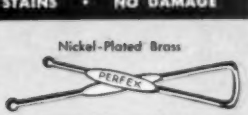
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Packaging**Knitters Trying Cast Poly Film**

PHILADELPHIA, Pa.—Several local sweater manufacturers are experimenting with a new cast polyethylene packaging material supplied by E. W. Twitchell, Inc., which is said to be superior to extruded polyethylene, currently in use.

The new cast polyethylene material is superior in clarity, permitting the true color of the packaged garment to show through, according to Perry Wark, of the company's packaging division. Extruded polyethylene packaging material retains a slight smoky cast.

In addition, the new material is more rigid and has more body, thereby greatly facilitating the actual packaging process for the manufacturer of the goods to be packaged. The garments can be slipped into the bag more easily, according to the Twitchell firm, which supplies packaging materials to the knit goods as well as other industries.

Some of the leading manufac-

turers of sweaters and swimwear, here, are experimenting with new packaging methods using polyethylene bags as a base.

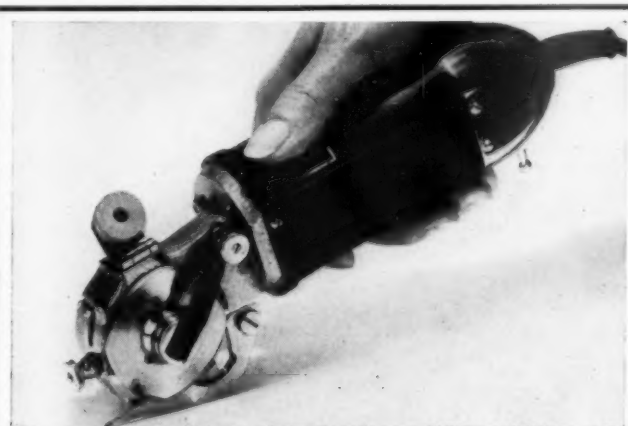
Mill owners praised the flexibility of polyethylene packaging, at the same time emphasizing its cleanliness and attractiveness, which in turn stimulates sales down to the retail level.

Many mills are complementing the polyethylene system by using finely designed boxes, which emphasize their trade names.

Tartan Knitting Mills, one of the first mills in the area to acquire a machine for polyethylene packaging two years ago, reports "excellent results" since the system was inaugurated.

Infanta Knitting Mills, which manufactures a full line of knitted wear for babies, sweaters for teenage girls and sweaters for boys up to 12, uses polyethylene bags, with the exception of a three-piece baby set, which is attractively packaged in a white box.

Highland Knitting Mills, besides using polyethylene bags to package their mens' sweaters, employ a distinctive Scotch plaid theme on their boxes.



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Packaging Feature

Jay Company Packages Knitwear In One-Step System

PHILADELPHIA, Pa.—A machine that forms a polyethylene bag and packages a garment in one operation, is being used to accelerate the sale of knitwear manufactured by The Jay Company. The See-Safe MA packaging system is a fully-automated, self-contained system that uses open-end polyethylene roll stock to form and heat-seal a transparent package directly around the product.

As the polyethylene stock comes off the roll, it is opened by a spreader mechanism. The fold is at the rear of the machine, away from the operator. The operator inserts the product in the open end of the roll stock. The sides are formed by an automatic heat-sealer and cutter activated by the operator after the product has been inserted in the machine. And end-seal attachment for fourth side closure, an electric eye for printed stock, an air vent hole punch and an electric counter are also available.

The packaging system is marketed by Mehl Manufacturing Company, Cincinnati, and the Kordite Company, Macedon, N.

Y. It uses See-Safe polyethylene film, which is made from U. S. Industrial Chemicals Company's Petrothene 112 polyethylene resin.

Packaging speeds on the system range from 20 to 30 items a minute. The machine can be adjusted in a few minutes to make bags of any size from a half-inch by six inches to thirty by thirty inches.

When a snug fit is called for, the system can be operated with a shrink tunnel. No appreciable rise in temperature of the product or the package occurs in the heated air tunnel.

Machines used with the system sell for \$2,000 to \$4,000.

The Jay Company, an eastern affiliate of Jantzen, Inc., uses the MA system to package knit shirts, bermudas, anklers and

other Jantzen sportswear. Jay retains the traditional Jantzen outer box for protection during shipping. At retail counters, the box cover is removed to display the transparent polyethylene bag emblazoned with "Just wear a smile and a Jantzen."

The procedure costs Jay an additional two cents a dozen for labor. Packaging material costs have increased by one per cent per item.

Jay N. Lipsey, manager of Jay, says the See-Safe bag was selected for "strength, clarity, durability and printability" and that it has substantially reduced the damage caused by excessive handling.

See-Safe also manufactures a conveyor that can be raised at either end to carry packages at an incline. It comes in two widths and is equipped with a neoprene rubber belt supported by a metal platform.

The company's heat shrink tunnel operates on either 115 or 240 volt current. It is thermo-



After the garments are bagged at Jay Company, they drop to the conveyor belt. Packers then box them for shipment.

statically controlled and the heat elements can be replaced from local sources.

Richard Andrews, Jantzen's packaging director, feels that See-Safe bags "give an extra plus to Jantzen products."

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The first step in the bagging of Jay Company garments is placing a folded garment in it to be automatically enveloped in polyethylene.



Polyethylene roll stock, pre-printed with the trademark, is loaded in the packaging machine.

Obituaries

Hold Funeral Services For Arthur Molyneux, 80

PHILADELPHIA, Pa. — Services for Arthur Molyneux, former president of the Madison Spinning Co. were held June 1.

He was 80 years old and before his retirement in 1955 he had been with the Madison firm for 33 years and was business manager of Thomas H. Barker & Sons, of Gladwyn, Pa., for seven years.

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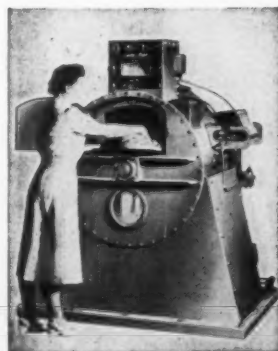
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Display

Munsingwear Wins National Award

MINNEAPOLIS, Minn. — Achievement for excellence in design of the point of purchase unit displaying the Grand Slam golf shirt line produced by Munsingwear, Inc., has brought that firm a first place award in a national contest.

Presented by the Point-of-Purchase Advertising Institute, comprised of display manufacturers and designers, the award was part of POPAI's first merchandising awards contest. Winners were selected from hundreds of entries submitted by firms producing point of purchase displays.

Holds Up To 10 Shirts

Manufactured by W. L. Stensgaard & Associates of Chicago, the unit holds up to 10 Munsingwear shirts and is so constructed that the special underarm gusset, a unique feature of the line, can be shown to best advantage. Maximum color and style display for easy customer selection are also features of this counter-top or ledge unit.



Chosen as outstanding by the Point-of-Purchase Advertising Institute (POPAI), this unit, designed for in-store display of Munsingwear Grand Slam golf shirts, was selected from hundreds of entries submitted during POPAI's first merchandising awards contest. POPAI is made up of display manufacturers and designers. The unit, accommodating 10 shirts, has hangers specially designed to display the underarm gusset feature which distinguishes Grand Slams.

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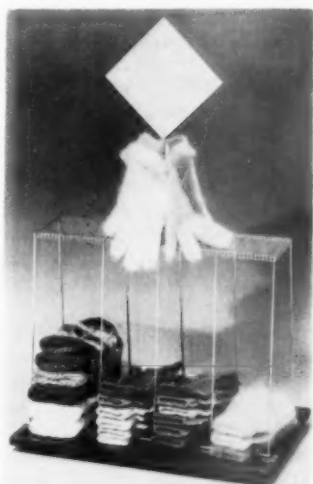
Jantzen Case Displays Fall Women's Gloves

PORTLAND, Ore. — Gloves and mittens by Jantzen Inc. can be attractively merchandised in a walnut and brass-plated retail display unit which conserves space and helps keep stock in order, without stifling impulse buying. The unit has been designed by Jantzen especially for its women's gloves, which are a part of the fall sportswear accessories line.

All accessories are color-planned to match or complement Jantzen separates. The fall line includes an angora style, in a fifty-fifty mixture of French angora and lamb's wool; Orlon knit gloves and mittens in solids and patterns, and golf gloves of leather and nylon.

Other accessories for the women's fall line include an array of knit hoods and caps, mainly in Orlon. A ribbed and tasseled style is in wool and Acrilan.

Knee-length socks are of wool and stretch nylon. There are also ankle-length socks or Ankle Cozys in acrylic fiber with 30 per cent striped nylon.



A walnut and brass retail display unit by Jantzen is for women's gloves or other accessories.

Personals

Martin Cohen Graduates; Son Of Mecro President

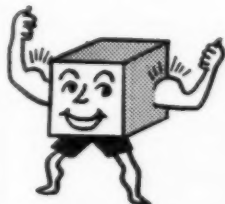
Martin J. Cohen, son of David B. Cohen, president of Mecro Knitting Mills, Inc., Brooklyn, has graduated from the Wharton School of the University of Pennsylvania. He was a member of the varsity squash team.



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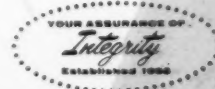
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CHICAGO: GEORGE W. VENESS, 222 West Adams St., State 2-8962

NEW TEXTILE PATENTS

NEW RING TWISTING MACHINE PATENTED—A new twisting machine invented by William Dewhirst, Philadelphia, Pa., has been granted U.S. Patent No. 2,981,050, which the inventor has assigned to Haskell-Dawes Machine Company, Inc., Philadelphia.

The new patent covers a ring twister for producing a given twist in a strand. The twister has a vertically disposed take-up spindle, a vertically reciprocable ring surrounding the spindle, a traveler on the ring and means to supply a number of strands to the traveler.

A compressor between the supply and the traveler receives the strands and compacts them into a single strand. A flyer assembly, between the compressor and the traveler consists of a rotating flyer head, a drive capstan for the compacted strand, an elongated rotary hollow socket which mounts the capstan coaxially within the head, means to rotate the socket and capstan, and a twisting pulley mounted in the head tangentially in spaced alignment with the bore of the socket to receive the strand passing from the compressor through the bore of the socket.

Guides direct the yarn from the twisting pulley around the capstan to be advanced by it and back over the twisting pulley. Thus the pulley forms a twisted strand at the compressor. Drive means for the

flyer-head rotate the head at a speed and direction to twist the strand at the compressor in the same direction and approximately the same number of turns as the given twist.

NEW PATENT FOR BULKING YARN GOES TO DU PONT—New apparatus for bulking yarn invented by Conrad Joseph Gonsalves of Arnhem, Netherlands, has been granted U.S. Patent No. 2,982,000, and assigned by the inventor to E. I. du Pont de Nemours & Company, Inc., Wilmington, Del.

An air jet for bulking twisted yarn comprises a nozzle with coaxial yarn passageways leading to and from the nozzle. The passageway leading from the nozzle is defined by a longitudinal bore within a nipple having a conical entrance surface close to the exit end of the nozzle. A bushing coaxially surrounds the nozzle and has channels in it sloping inwardly in the direction of yarn travel and discharges adjacent the nozzle tip in a direction generally chordwise of the yarn path and in the same direction as the twist in the yarn.

An air supply to the bushing serves to whip the yarn about and form curls in it. The relative axial position of the nozzle tip and the bushing is adjustable. Means are provided at the exit end of the passageway to change the direction of yarn travel abruptly.

(Continued on Next Page)

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PROCESS PATENTED FOR REDUCING TRANSLUCENCY OF KNITTED FABRICS—A new process for reducing the transparency of knitted and woven fabrics of polyamide fibres invented by Emil Knup of Arlesheim, Switzerland, has been granted U.S. Patent No. 2,982,673, which the inventor has assigned to Ciba Limited, Basel, Switzerland.

The new process for reducing translucency comprises impregnating the woven or knitted fabric in an aqueous acid bath containing polyvinyl acetate emulsified with an anion-active dispersing agent. The dispersing agent contains a sulphuric acid ester group and also contains an aluminum salt capable of reversing the charge of anion-active products. The impregnated fabric is dried and then subjected to a calendering treatment at a raised temperature.

CHEMSTRAND ACQUIRES NEWLY PATENTED YARN TREATING APPARATUS—New apparatus for treating yarns invented by William R. O'Shields of Pensacola, Fla., has been granted U.S. Patent No. 2,982,001, and assigned by the inventor to The Chemstrand Corporation, Decatur, Ala.

The new apparatus is designed for treating a continuously advancing assembly of yarns. It consists of a frame, means for applying size to the assembly of yarns, and a pair of rotating heated drums mounted on one end of the frame and adapted to engage the sized yarns for partially drying the size on the yarns.

First and second rotating guide rolls mounted on opposite ends of the frame receive the yarns from the pair of

heated drums and advance the yarns from one end to the other along an elevated path. A number of split rods mounted above the frame and beneath the elevated path are adapted to receive the assembly of yarns from the second guide roll and separate the assembly of yarns into a number of yarn sheets.

A third guide roll mounted on the frame at one end receives the yarn sheets from the split rods. Heat-producing lamps mounted on the frame beneath the yarn sheets direct concentrated heat upward onto and dry the yarn sheets. An arcuate reflector mounted on the frame above the yarn sheets reflects concentrated heat from the lamps downward onto the yarn sheets. A shield mounted on the frame between the reflector and the elevated path prevents drying of the assembly of yarns moving along the elevated path.

NEW BRITISH PROCESS OF MAKING VOLUMINOUS YARN GRANTED U.S. PATENT—A new method for the production of voluminous yarn invented by William Pool of Spondon, near Derby, England, has been granted U.S. Patent No. 2,982,082, which has been assigned by the inventor to British Celanese Limited.

The new patent relates to apparatus for the production of loopy or voluminous yarn from a continuous filament yarn. The apparatus comprises feed means for forwarding continuous filament yarn at a determined speed, a voluminising jet with an inlet tube extending through a chamber and provided with a jet tip whose outer surface is in the form of two truncated cones.

(Continued on Page 66)

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BRITISH INVENTOR GETS U.S. PATENT FOR NEW WAY TO MAKE CELLULOSE TRIACETATE TEXTILES—A new process for the manufacture of cellulose triacetate filmamentary textile materials invented by John Downing of Spondon, near Derby, England, has been granted U. S. Patent No. 2,982,598, which the inventor has assigned to British Celanese Limited.

The new patent covers a process for making triacetate filmamentary materials by dry spinning wherein a solution of the cellulose triacetate in a solvent consisting of 88 to 100 per cent by weight of methylene chloride and 0 to 12 per cent by weight of an unsubstituted monohydric alcohol having at most two carbon atoms in the molecule is extruded into a current of air over a period

during which the absolute humidity of the ambient air exceeds a hereinbelow defined critical maximum at least a portion of the time. The improvement in the newly patented process comprises adjusting the absolute humidity of the evaporative medium in the neighborhood of the point of extrusion to a value of at most the critical maximum which is linearly related to the average temperature of the air surrounding the filaments from the point of extrusion to the point at which they are substantially fully set, being 4.7 grains per cubic foot at 48 degrees Centigrade and 3 grains per cubic foot at 28 degrees Centigrade, subject to an overriding maximum of 5 grains per cubic foot.

METHOD PATENTED TO PRODUCE IMPROVED RAYON — A new method of producing shaped bodies of regenerated cellulose having enhanced tensile strength invented by Marion R. Lytton, West Chester, Pennsylvania, has been granted U. S. Patent No. 2,979,376, and assigned by the inventor to American Viscose Corporation. The method of producing the improved rayon comprises extruding viscose containing from about 0.25 per cent to about 5 per cent, based on the weight of the cellulose in the viscose, of an alkali-soluble polyoxyalkylene glycol ether of p,p'-isopropylidiphenol into an aqueous spinning bath. The bath contains from about 10 per cent to 25 per cent sodium sulfate, 3 to 15 per cent zinc sulfate and sulfuric acid, the sulfuric acid content of the bath being between the slubbing point and about 9 per cent.

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Laminates

Nopco Chemical Co. Buys 6 Foam Firms

NEWARK, N. J., May 25—Nopco Chemical Company, a producer of urethane plastic foam, has acquired six midwest foam companies from the D & W Clark Corporation, a privately owned Chicago firm for 30,000 shares of Nopco common stock.

The six companies, which are engaged in the fabrication and distribution of urethane foam, foam rubber and other products, are: Clark Foam Products Co., Inc., Illinois; Clark Products, Inc., Indiana; Clark Products, Inc., Nebraska; Clark Foam Rubber & Fabrics, Inc., Colorado; Clark Foam Rubber, Inc.; Minnesota and Clark Fibre Products, Inc., Illinois.

Combined Sales

The combined sales of the six Clark companies for the twelve months ending March 31 were in excess of \$5.8 million. Nopco sales for the year ended December 31, 1960, were \$39.8 million.

George G. Stier, Nopco president, indicated that substantial benefits will accrue to the Clark companies' present customers since the customers will have a broader line of goods and products available to them as a result of the integration of the Clark companies into the Nopco organization.

He also indicated that the move will pave the way for the Clark companies and Nopco to gain new accounts in new areas. With Nopco's foam producing plants in North Arlington, N. J., Chattanooga, Tenn., and a

planned Nopco foam producing plant in the midwest, the Clark companies will not only be in a better position to service their present customers with both polyether and polyester foams but they will also be able to broaden their sales efforts into new areas as far east as Pennsylvania, he said.

Personnel Unchanged

Mr. Stier also stated that there will be no change in personnel, and the new Nopco subsidiaries will continue to sell and distribute through offices and warehouses in Chicago, Denver, Evansville, Ind., Minneapolis, Omaha and Salt Lake City.

William L. Clark, a principal in The D & W Clark Corporation, will be a vice president and general manager of the subsidiaries. Other officers of the subsidiaries will be G. G. Stier, president, J. J. Denzler, secretary and R. M. Urich, Jr., treasurer, all Nopco officials. Chester S. Kos, who was controller and treasurer of Clark, will be assistant secretary and treasurer.

Expanding Facilities

Nopco has just recently expanded its facilities at North Arlington, N. J., and on May 15 a new foaming and fabricating plant was opened in Chattanooga. Design and engineering of an additional foaming plant in the midwest have already been completed and it is expected to be in full operation before the end of 1961.

Nopco in 1961 will also complete construction of a multi-million dollar facility at Linden, N. J., to produce toluene diisocyanate (TDI) — a basic ingredient of urethane foam.

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- 1—Stein separating machine.
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- 1—Jacquard LH, 30", 7-cut, 6 feed, stripers.
- 1—Leighton, 8 1/4", 2-cut, 2 feed, 52 N., 1 needle rack.
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- 1—Jacquard LA, 15", 8 cut, 372 needles.
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- 2—Phila. Jacquard LA Mach, 8 & 10 Cut, 30", 12 Feed, 3 color stripers
- 1—Phila. Jacquard TJ, 8 cut, 12 feed, like new
- 3—Phila. Jacq. TJ Mach., 7, 8 & 8 1/2 Cut, 28", 6 Feed
- 1—O.G. Interlock Mach., 30", 14 Cut, 12 Feed
- 2—Phila. Jacq. TJ, 18" 7 Cut, 4 Feed, 4 Col Strip
- 6—Phila. Jacquard TAI Machs., 12, 13, 13 1/2, 16 1/2 Cut, 30", 12 Feed
- 4—Phila. Jacquard TA Mach., 10, 11, 12, 13 Cut, 30", 12 Feed
- 1—Philadelphia Jacquard MLW, 28", 11 Cut, 24 Feed, Wheels and Jacquards
- 1—O. G. Multi-Feed Jersey, 1x1 Rib, 8 Cut, 36 Feed, 32"
- 3—Leighton Machs., 22", 28", 28", 10 Cut, 6 Feed
- 2—Wildman PB2 Mach., 17", 18", 8 Cut
- 5—Universal Supramats, 4 cut & 6 cut, 62", new style
- 2—Universal Supramat, 12 & 10 Cut, 62", like new
- 1—Dubied BAN Mach., 56", 12 Cut, Jacquards Front & Back
- 3—Dubied, Single & Double Lock, 22", 7 & 12 Cut, 22", 44", & 47", 4 Bar
- 2—Lamb Doublehead Border Machines, 6 & 7 Cut
- 3—Cissel Tumbler Dryers
- 1—McCreary Brushing Machine, 72", New Style
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- 1—Rimaldi machine
- 2—Stafford & Holt machines, 30", 32", 6 & 7 Cut, 6 & 12 Feed.
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Cutting — Slicing — Etc., Equipment

WANTED

Supreme machines, 24" and 26", pattern wheel and automatic stripers. Will pay good price for immediate delivery. Must be in good condition.

BOX 240C

GET THE BEST DEAL

Before You Buy or Sell Used Machinery
WRITE — WIRE — TELEPHONE

SPEIZMAN KNITTING MACHINE CORP.

350 Fifth Avenue
SUITE 4923

New York 1, N. Y.
Phone: PE 6-0930-1

FOR SALE

2 — 10 cut TA
4 — 13 cut TAI

8 — High Speed Merrow
2 — 16 1/2 cut TAI

In good condition. Can be seen in operation. Will be sold separately.

CRAFT KNITTING MILLS

119 Ingraham St., Brooklyn 37, N. Y. HY 7-2660

Dealer's commission protected if you bring the customer.

WANTED

6 end winding machine to wind from skeins to cones.
WILSHIRE KNITTING MILLS, INC.
426 E. Allegheny Ave. Philadelphia 34, Pa.
GA 3-9570

LIQUIDATION SALE

MAC M. ROTHKOPF
&
GENE A. ROTHKOPF } AUCTIONEERS

Will Sell at PUBLIC AUCTION

Plant of GRUNDFEST KNITWEAR CO.

Wednesday, June 21st, 1961

at 11:00 A.M. at 40-24 — 22nd Street, Long Island City, N. Y.

KNITTING MACHINERY

- 6—PHILA. JACQUARD MACHINES, MODEL TAI, 30", 6 Cut, 12 feed, 4 color strippers, 48 end Stop Motion.
- 2—PHILA. JACQUARD MACHINES, MODEL TAI, 30", 13½ Cut, 12 feed, 4 color strippers, 48 end Stop Motion.
- 1—SUPREME JERSEY, 24", 14 Cut, 32 feed, 2 pos. wheels.
- 1—STAFFORD & HOLT PA 28", 9 Cut, 8 feed.
- 2—LAMB DOUBLE HEAD BORDER MACHINES, 5 Cut.
- 1—SUPREME F.A. POWER, 48", 10 Cut, 4 Bar.
- 1—SUPREME F.A. POWER, 40", 11 Cut, 4 Bar.
- 1—C & F F.A. POWER, 44", 7 Cut, 4 Bar.
- 1—QUEENS F.A. LINKS & LINKS, 60", 7 Cut, 4 Bar.

SEWING EQUIPMENT

- 6—MERROW MACHINES, A-3DW-1
- 4—MERROW MACHINES, A-3DW-3
- 3—SINGER MACHINES, 251-2
- 2—SINGER MACHINES, 241-12
- 2—REECE BUTTONHOLE MACHINES, S-2 Stand, Motor & Glo-lamp.
- 1—UNION SPECIAL 11900 DIFF. with Ind. Stand & Motor.
- 1—MERROW MACHINE A-3DW-1 with Ind. Stand & Motor.
- 3—U.S. MOCK FASHION 88 KSL with Ind. Stand & Motor.
- 2—CHANDLER BUTTONSEWERS, with Ind. Stand, Motor & Glo-lamp.
- 1—ADAMSON BUTTONSEWER with Ind. Stand, Motor & Glo-lamp.
- 1—SINGER 24-70 with Ind. Stand & Motor.
- 1—W & G LABEL MACHINE, Ind. Stand & Motor.
- 2—U.S. MOCK FASHION 88 KSL machines.
- 14—NATIONAL SAFETY TABLES with 2 Motors.

PRESSING & CUTTING EQUIPMENT

- 3—EASTMAN R.K. CUTTING MACHINES, 6"
- 2—SLITTERS
- 2—STEAM TABLES, 30" x 60" with Device Att.
- 3—STEAM TABLES, 30" x 60"
- 1—ALLEN BYLLMYER VACUUM SYSTEM
- 2—STEAM TABLES, 24" x 48" with Device Att.
- 2—TAILOR MODEL PRESSES
- 1—KASTRINSKY CALLENDER, 48", with trolley.

BRUSHING & LOOPING EQUIPMENT

- 4—McCREARY BRUSH MACHINES, 60", Latest Style
- 2—MODEL P LOOPERS, 14 Pt.
- 2—SOTCO LOOPERS, 7 Pt. with Tables & Motor
- 1—MODEL P LOOPER, 7 Pt. with Ind. Table & Motor.
- 2—MODEL P LOOPERS, 14 Pt. with Tables & Motors

MISCELLANEOUS

- 1—2 HEAD BACKWINDER
- 1—COMPRESSOR WESTINGHOUSE 2 HP.
- 4—EXHAUST FANS
- 1—Sealing Machine
- 1—Bryant Gas Heater
- 1—Kimball Midget Pin Ticket Machine
- 1—Cincinnati Time Clock
- 30—Metal Factory Chairs
- 36—Metal Work Benches
- 1—Vise
- 1—Pats Cabinet
- 1—FAIRBANKS PLATFORM SCALE
- 1—COCA-COLA MACHINE
- 4—PEDESTAL FANS
- 1—GLO-MARKER
- STEEL FENCE WITH DOORS
- 2—SECTIONAL CUTTING TABLES
- 40—8 Ft. Fluorescent Fixtures
- 55—Masonite Box Trucks with Wheels
- 12—Wood Factory Chairs
- 1—Grinder & Motor
- 1—Delta Grinder
- Packing Tables
- 2—Wood Flat Top Desks
- 2—4 Drawer Metal File Cabinets
- 1—Paymaster checkwriter
- 1—PENN GARMENT SCALE
- 1—OLIVETTI TETRACYTYS MACHINE
- 3—Wood Arm Chairs
- 1—FIREPROOF SAFE
- 1—CLARY ELECTRIC ADDER
- 1—FEDDERS 1 Ton Air Conditioner

Premises opened for inspection until day of sale.

FOR ACCOUNT OF WHOM IT MAY CONCERN:

A very large lot of Buttons, Grograin Ribbon, Kismet Cotton, ORLON & MOHAIR YARN — WOOL & MOHAIR YARN.

FOR INFORMATION CONCERNING THIS PLANT, WRITE, PHONE OR WIRE

MAC M. ROTHKOPF, Auctioneer

317 Bushwick Avenue

HYacinth 7-1486

Brooklyn 6, N. Y.

MILL PHONE — Stillwell 6-4043

By Car: Across Queensboro Bridge to first Exit, then turn right to 22nd St., plant 1 block from bridge.
By Train: IRT Train To Flushing, Get off at Queensboro Station, walk 4 short blocks to plant.

Parking: 1 Block from plant.

WINDING EQUIPMENT FOR SALE

2—80 spindle Foster Winders equipped with adjustable swifts and waxing attachments.

1—40 spindle Roto Coner—stainless steel rolls, waxing attachments, and slub catcher.

BOX 242

COMPLETE SWEATER WASHING UNIT

with six large Cummings-Landau dryers;
One extractor and one new washing double treatment unit.
Two, 50 spindle Foster winders.

Call EVergreen 7-1145

FOR SALE

1—Dubied CAL, 8-cut, links, 75"

1—Stoll LIFADO, 8-cut, links, 68"

Exceptional condition, both fully automatic double system, power purl machines. Excellent for cable, intarsia, etc.

3—Dubied BARB, 8-cut, flat, 55"

All in excellent condition, fully automatic double system machines with double jacquard stitch transfer and full fashion attachments. Excellent for trimmings.

For details write or phone:

M. A. KEFF KNITTING MILLS, INC.

132 Bergen Blvd., Fairview, N. J.

WHitney 5-9152

YARNS WANTED, FOR SALE**YARN WANTED**

Looped Mohair, 1250 to 3200 yds/lb.

Metlon 1/64's or finer—supported

Garnetted Orlon, 1/2.5 or 1/3

Turbo Orlon, Natural

Large quantities only.

State price, colors, manufacturers and quantities.

BOX 240E

FOR SALE**ELASTIC YARN FOR KNITTING**

• All Sizes and Colors

BEDFORD YARN CO.

79 Clifton Place
Brooklyn, N. Y.
MAin 2-1340

WILSON YARN CORP.

141 Wilson Ave., Brooklyn 37, N. Y.

GL 6-9686

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WORSTED & SYNTHETIC

YARNS

We carry in stock
all colors and
all sizes for the
knitting trade!

Call us if you need short lots of yarn to fill special orders.

We have in stock, at all times, worsted, zephyr & Orlon, in all colors and sizes, on cones, FOR IMMEDIATE DELIVERY

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CENTURY
YARN CO.

Brooklyn 6, N. Y.

EVergreen 8-8277

ENTIRE YARN INVENTORIES PURCHASED FOR CASH

WE BUY AND SELL

Worsted — Synthetics — Blends

AT BEST PRICES!

BEDFORD YARN CO.

MAin 2-1340

Brooklyn, N. Y.

79 Clifton Place

FOR SALE**ZEPHYR WOOL YARNS**

7,000 lbs., 2/24, 64-70's

2,000 lbs., 2/22, 64-70's

Above yarns are in the natural.

Suitable for 6 - 7 cut Shetland wool sweaters
(2 ends equals 2/12 and 2/11). Priced below cost.

BOX 240L

CONTRACT WORK, CONTRACTORS WANTED**CONTRACT WORK WANTED**

on ten latest model Leboceys 16 and 18
cut double knit Jacquard Circular machines.

Best equipment, best craftsmanship. Latest
designs; diversified knitting possibilities.

BOX 248

AVAILABLE: CONTRACT WORK

Our recent expansion requires another jobbing set-up in
the knitted suit field. We have the skill and the facilities
and look for a reliable jobber in that field.

BOX 240P

CONTRACTOR AVAILABLE

Jacquard, 7-cut, Supreme,
knitting and, or finishing.

BOX 240T

CONTRACTORS WANTED

with 4, 5, 7 gauge flat machines and sewing plant
for ladies' bulky sweaters. Large sweaters.

BOX 240DD

CONTRACTOR AVAILABLE

on 4-cut flat machines. Experienced on
ladies' and men's bulkies. Also rib
knitting on Wildman machines.

Call EVergreen 7-4383

HELP WANTED**SALESMAN WANTED**

By Expanding Yarn Sales Agency

representing prominent spinners of synthetic, worsted
and woolen spun yarns. Some technical knowledge
desirable. Excellent compensation arrangement.

MEIMAN & CO., INC.

350 5th Avenue, New York 1, N. Y.

OXford 5-5825

KNITTING MACHINE MECHANIC WANTED

for Phila. TJ, TA, TAI, LH machines, to take full charge of department. Must be production minded. Only top quality person will be considered. Excellent salary and working conditions.

BOX 201

EXPERIENCED FABRIC MAN WANTED

Thoroughly experienced in all phases of knit goods, to oversee entire mill operation. Excellent opportunity for the right man. Submit complete resume.

BOX 236

KNITTER-MECHANIC WANTED

Experienced on Jacquard LH, TJ, Dubied flats and flat links. Must be top grade man. Good future, top salary to right man. Must be willing to locate in New England. Write to

BOX 240J

KNITTER-MECHANIC WANTED**PHILA. JACQUARD LH MACHINES**

Excellent opportunity.
52 week production.

BOX 240F

PATTERN MAKER WANTED

Leading manufacturer of sweaters, knit dresses and sportswear — in Israel — seeks outstanding person with designing and pattern making qualifications. This is a once-in-a-lifetime opportunity to become affiliated with a true "growth" firm in the fastest growing country in the world.
Interviews will be held in New York.

BOX 240K

CUTTER WANTED

Experienced on ladies' sweaters, to take complete charge of cutting department.

BOX 240R

KNITTERS WANTED

Experienced on Supreme and Rib machines. All shifts. Steady. Overtime. Transportation paid.

FALMARK

148-12 94th Ave. Jamaica, L. I. AXtel 1-5670

FORELADY OR FOREMAN WANTED

Take charge of sewing department of ladies' sweater mill, located in Brooklyn.

BOX 240X

KNITTER — MECHANIC AND KNITTERS

wanted for double knit Lebocey circular Jacquard machines.
Mill located in Brooklyn.

BOX 247

STITCHING ROOM FOREMAN WANTED

Fully experienced on sweaters and swimwear. Excellent position with long-established firm in New England.

BOX 245

EXPERIENCED MECHANIC WANTED

Must be familiar with all types of knitting machines.

BOX 226

TEXTILE SALESMAN WANTED

to procure work for plant using Kidde Raschel knitting machines.

BOX 240N

KNITTER — MECHANIC WANTED

for flat V bed plant. Also, flat links and links. Advise experience and salary expected. Mill located out of New York City.

BOX 246

POSITIONS WANTED**KNITTER AVAILABLE**

To work days. Thoroughly experienced on TAs, TAls, TJIs, JSD, OG, Universal, Philip and Scott and Williams Machines.

BOX 240Q

FORMER MILL OWNER SEEKS POSITION AS ASSISTANT TO OWNER

Experienced from knitting to finished garment. Metropolitan area preferred.

BOX 240V

BUSINESS OPPORTUNITIES**PARTNER WANTED**

Mill in nearby New Jersey seeks active partner. Outstanding opportunity for experienced production man, knitter, or cutter with some capital. Modern plant with production capacity of 1,000 dozen ladies' sweaters per week.

BOX 240M

PARTNER WANTED

Knitting plant. Good going business.
Mechanic preferred

BOX 249**MERCHANDISE FOR SALE**

500-600 yards knitted bathing suit elasticized
fabric. Immediate delivery, priced right.

BOX 240D**MERCHANDISE WANTED****WANTED**

Bulky knit sweaters to sell jobbers, western states—
or retail stores, Southern California.

BOX 240H**REAL ESTATE****FOR SALE OR RENT**

One story building, Brooklyn, Brownsville section

8000 sq. ft.; oil heat, fully sprinkled, air conditioned offices,
ample power. Presently knitting mill. Occupancy about
December 1st. For further information, call Mr. M.

HY 5-4949**FOR RENT**

E.N.Y. building; 5,000 sq. ft., 25 ft. ceiling.
Excellent labor market. Subway 2 blocks away.

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2222 Pitkin Ave., B'klyn 7, N. Y. **EVERgreen 5-3700**

CLOSE-OUTS WANTED**CLOSE-OUTS WANTED**

CASH PAID for surplus stocks of Sweaters and Bathing Suits.

BERNETTE TEXTILE COMPANY

101 W. 31 St., New York City

BRyant 9-5526-7

\$ \$ CASH PAID FOR CLOSEOUTS \$ \$
SWEATERS — POLO SHIRTS — SPORTSWEAR

Men's, Boys'
Girls', Ladies'
CALL US FIRST!

ARNA KNITWEAR, INC.1265 B'way, N. Y. 1, N. Y. **OR 9-1677****JERSEY FABRICS, CLOSEOUTS WANTED**

Cotton, Orlon, Acrilan, solids & fancies. Fleeces, Metallics.
Knitted collars, woven piece goods & remnants. **We pay cash.**

CHARMKNIT CORP.

82 Franklin St., New York City

WALKER 5-6828**RIDGEWOOD**

2 Ton Panel truck and driver

FOR HIRE

240 cu. ft. capacity

H. O'CONNOR EM 6-3282**TRADE WANTS**

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WARP KNIT TRIMS. SAVE MONEY ON LARGE QUANTITY. NEW PROCESS CUTS COSTS. SEND SAMPLE FOR QUOTE. BOX 240

Machinery for sale: 36" and 54" stainless steel knitwear washing machine; 30" extractor with stainless steel basket. All motor driven. **Box 241**

Allen Unravelling Co., 15 Llewellyn Ave., Hawthorne, N. J. **HAWthorne 7-0460 UNRAVELING SERVICE**

Free lance pattern making, all sizes and styles, graded accurately. **Box 243**

FULL - FASHIONED KNITTER - MECHANIC seeks opportunity with progressive company. **TOP-NOTCH** mechanic. Able to set up new and old styles. Assume complete charge of full-fashioned knitting department. **Box 244**

Experienced mechanic wanted for circular Links and links. Good opportunity for right man. **Box 240A**

For Sale: small, fine gauge knitting mill with complete finishing plant. Reasonable. **Box 240B**

Knitter-mechanic wanted on Ordinance Gauge and TAI machines. Call Evergreen 1-3700

Contract work wanted on ladies' sweaters. 7 gauge links machines, or knitting only. **Box 240G**

Contractor seeks additional work on 18-20 cut Philips machines. Ladies' Ban-lon sweaters. **Box 240Y**

Knitter to assume charge of night shift LA, TA, Flats. Location in Connecticut. 35 miles from the Bronx. Relocation desirable. Guaranteed annual salary basis. **BOX 240AA**

Foreman available. Sewing department. Full knowledge sweaters, hats, machine repairs. **BOX 240BB**

Contract work wanted on latest type 8 gauge LHDS Jacquard circular machines. Shirts or sweaters. **BOX 240CC**

SERVICES, SUPPLIES, FOR SALE**SAM STARK specializing in****CREATIVE JACQUARD DESIGNS**60 Clarkson Ave., Brooklyn 26, N. Y. **IN 9-8554 Aft. 3 P.M.****SUBSCRIPTION ORDER FORM****KNITTED OUTERWEAR TIMES**

386 Park Ave. South, New York 16, N. Y.

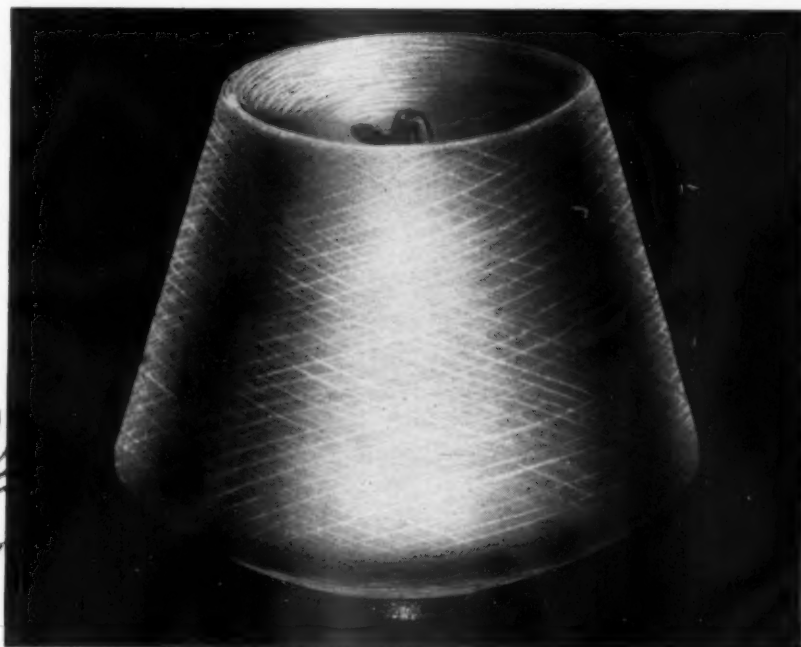
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From spinning to dyeing, CROSS Yarn is as fine in quality as human skill and technology can produce.

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When you buy from Woonsocket you are buying the best! Whether it be cashmere, camels hair, angora, fur blends, mohair, lambs wool or other specialty yarn, Woonsocket begins with the world's finest fibers. Woonsocket processes them in its own mills, under highly scientific control until the yarn is delivered promptly to your factory. Thus you are assured of an adaptable resource, able to meet the constantly changing demands of men's and women's fashions.

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